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DEPARTEMENT MOBILITEIT EN OPENBARE WERKEN
WATERBOUWKUNDIG LABORATORIUM

Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing

Bestek 16EB/05/04

Deelrapport 2.26 : **13-uursmeting Sediview op 06/03/2009 tijdens doodtij - Deurganckdok (transect DGD)**

Report 2.26 : **Through Tide Measurement Sediview on 06/03/2009 during neap tide - Deurganckdok (transect DGD)**

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1. INTRODUCTION

1.1. The assignment

This report is part of the set of reports describing the results of the long-term measurements conducted in Deurganckdok aiming at the monitoring and analysis of silt accretion. This measurement campaign is an extension of the study "Extension of the study about density currents in the Beneden Zeeschelde" as part of the Long Term Vision for the Scheldt estuary. It is complementary to the study 'Field measurements high-concentration benthic suspensions (HCBS 2)'.

The terms of reference for this study were prepared by the 'Departement Mobiliteit en Openbare Werken van de Vlaamse Overheid, Afdeling Waterbouwkundig Laboratorium' (16EB/05/04). The repetition of this study was awarded to International Marine and Dredging Consultants NV in association with WL|Delft Hydraulics and Gems International on 10/01/2006. The project term was prolonged with an extra year from April 2007 till March 2008 and a second time prolonged with one extra year from April 2008 till March 2009.

Waterbouwkundig Laboratorium– Cel Hydrometrie Schelde provided data on discharge, tide, salinity and turbidity along the river Scheldt and provided survey vessels for the long term and through tide measurements. Afdeling Maritieme Toegang provided maintenance dredging data. Agentschap voor Maritieme Dienstverlening en Kust – Afdeling Kust and Port of Antwerp provided depth sounding measurements.

The execution of the study involves a twofold assignment:

- Part 1: Setting up a sediment balance of Deurganckdok covering a period of two years, i.e. 04/2007 – 03/2009
- Part 2: An analysis of the parameters contributing to siltation in Deurganckdok

1.2. Purpose of the study

The Lower Sea Scheldt (Beneden Zeeschelde) is the stretch of the Scheldt estuary between the Belgium-Dutch border and Rupelmonde, where the entrance channels to the Antwerp sea locks are located. The navigation channel has a sandy bed, whereas the shallower areas (intertidal areas, mud flats, salt marshes) consist of sandy clay or even pure mud sometimes. This part of the Scheldt is characterized by large horizontal salinity gradients and the presence of a turbidity maximum with depth-averaged concentrations ranging from 50 to 500 mg/l at grain sizes of 60 - 100 μm. The salinity gradients generate significant density currents between the river and the entrance channels to the locks, causing large siltation rates. It is to be expected that in the near future also the Deurganckdok will suffer from such large siltation rates, which may double the amount of dredging material to be dumped in the Lower Sea Scheldt.

Results from the study may be interpreted by comparison with results from the HCBS and HCBS2 studies covering the whole Lower Sea Scheldt. These studies included through-tide measurement campaigns in the vicinity of Deurganckdok and long term measurements of turbidity and salinity in and near Deurganckdok.

The first part of the study focuses on obtaining a sediment balance of Deurganckdok. Aside from natural sedimentation, the sediment balance is influenced by the maintenance and capital dredging works. This involves sediment influx from capital dredging works in the Deurganckdok, and internal relocation and removal of sediment by maintenance dredging works. To compute a sediment balance an inventory of bathymetric data (depth soundings), density measurements of the

deposited material and detailed information of capital and maintenance dredging works will be made up.

The second part of the study is to gain insight in the mechanisms causing siltation in Deurganckdok, it is important to follow the evolution of the parameters involved, and this on a long and short term basis (long term & through-tide measurements). Previous research has shown the importance of water exchange at the entrance of Deurganckdok is essential for understanding sediment transport between the dock and the river Scheldt.

1.3. Overview of the study

1.3.1. Reports

Reports of the project 'Opvolging aanslibbing Deurganckdok' between April 2008 till March 2009 are summarized in Table 1-1. An overview of the HCBS2 and 'Opvolging aanslibbing Deurganckdok' (between April 2006 till March 2008) reports are given in APPENDIX I.

This report 2.25, is one of a set of reports that gains insight in sediment and water transport between Deurganckdok and the river Scheldt, which belongs to the second part of this project.

Table 1-1: Overview of Deurganckdok Reports

Report	Description
Sediment Balance: Bathymetry surveys, Density measurements, Maintenance and construction dredging activities	
1.20	Sediment Balance: Three monthly report 1/4/2008 - 30/6/2008 (I/RA/11283/08.076/MSA)
1.21	Sediment Balance: Three monthly report 1/7/2008 – 30/9/2008 (I/RA/11283/08.077/MSA)
1.22	Sediment Balance: Three monthly report 1/10/2008 – 31/12/2008 (I/RA/11283/08.078/MSA)
1.23	Sediment Balance: Three monthly report 1/1/2009 – 31/03/2009 (I/RA/11283/08.079/MSA)
1.24	Annual Sediment Balance (I/RA/11283/08,080/MSA)
Factors contributing to salt and sediment distribution in Deurganckdok: Salt-Silt (OBS3A) & Frame measurements, Through tide measurements (SiltProfiling & ADCP) & Calibrations	
2.20	Through tide measurement Sediview DGD during average tide Spring 2008 – 19 June 2008 (I/RA/11283/08.081/MSA)
2.21	Through tide measurement Sediview DGD during average tide Spring 2008 –26 June 2008 (I/RA/11283/08.082/MSA)
2.22	Through tide measurement Sediview DGD during neap tide Summer 2008 – 24 September 2008 (I/RA/11283/08.083/MSA)
2.23	Through tide measurement Sediview DGD during spring tide Summer 2008 – 30 September 2008 (I/RA/11283/08.084/MSA)
2.24	Through tide measurement Sediview DGD during neap tide Autumn 2008 (I/RA/11283/08.085/MSA)
2.25	Through tide measurement Sediview DGD during spring tide Autumn 2008 (I/RA/11283/08.086/MSA)
2.26	Through tide measurement Sediview DGD during neap tide Winter 2009 (I/RA/11283/08.087/MSA)
2.27	Through tide measurement Sediview DGD during spring tide Winter 2009 (I/RA/11283/08.088/MSA)

Report	Description
2.28	Through tide measurement ADCP eddy DGD Summer 2008 – 1 October 2008 (I/RA/11283/08.089/MSA)
2.29	Through tide measurement Siltprofiler DGD Summer 2008 – 29 September 2008 (I/RA/11283/08.090/MSA)
2.30	Through tide measurement Siltprofiler DGD Winter 2009 (I/RA/11283/08.091/MSA)
2.31	Through tide measurement Salinity Profiling DGD Winter 2009 (I/RA/11283/08.092/MSA)
2.32	Salt-Silt distribution Deurganckdok: Six monthly report 1/4/2008 - 30/9/2008 (I/RA/11283/08.093/MSA)
2.33	Salt-Silt distribution Deurganckdok: Six monthly report 1/10/2008 – 31/3/2009 (I/RA/11283/08.094/MSA)
2.34	Calibration stationary & mobile equipment Autumn 2008 (I/RA/11283/08.095/MSA)
Boundary Conditions: Upriver Discharge, Salt concentration Scheldt, Bathymetric evolution in access channels, dredging activities in Lower Sea Scheldt and access channels	
3.20	Boundary conditions: Six monthly report 1/4/2008 – 30/09/2008 (I/RA/11283/08.096/MSA)
3.21	Boundary conditions: Six monthly report 1/10/2008 – 31/03/2009 (I/RA/11283/08.097/MSA)
Analysis	
4.20	Analysis of Siltation Processes and Factors 4/'06 – 3/'09 (I/RA/11283/08.098/MSA)

1.3.2. Measurement actions

Following measurements have been carried out during the course of this project:

1. Monitoring upstream discharge in the Scheldt river
2. Monitoring Salt and sediment concentration in the Lower Sea Scheldt taken from on permanent data acquisition sites at Lillo, Oosterweel and up- and downstream of the Deurganckdok.
3. Long term measurement of salt distribution in Deurganckdok.
4. Long term measurement of sediment concentration in Deurganckdok
5. Monitoring near-bed processes in the central trench in the dock, near the entrance as well as near the landward end: near-bed turbidity, near-bed current velocity and bed elevation variations are measured from a fixed frame placed on the dock's bed.
6. Measurement of current, salt and sediment transport at the entrance of Deurganckdok for which ADCP backscatter intensity over a full cross section are calibrated with the Sediview procedure and vertical sediment and salt profiles are recorded with the SiltProfiler equipment
7. Through tide measurements of vertical sediment concentration profiles -including near bed highly concentrated suspensions- with the SiltProfiler equipment. Executed over a grid of points near the entrance of Deurganckdok.
8. Monitoring dredging activities at entrance channels towards the Kallo, Zandvliet and Berendrecht locks
9. Monitoring dredging and dumping activities in the Lower Sea Scheldt

In situ calibrations were conducted on several dates to calibrate all turbidity and conductivity sensors, a description can be found in IMDC (2006a; 2007a; 2008f; 2008o).

1.4. Structure of the report

This report is the factual data report of the through tide measurements at the entrance of Deurganckdok on the 6th of March 2009. The first chapter comprises an introduction. The second chapter describes the measurement campaign and the equipment. Chapter 3 describes the course of the actual measurements. The results and processed data are presented in Chapter 4, whereas chapter 5 gives a preliminary analysis of the data.

2. THE MEASUREMENT CAMPAIGN

2.1. Overview of the parameters

The first part of the study aims at determining a sediment balance of Deurganckdok and the net influx of sediment. The sediment balance comprises a number of sediment transport modes: deposition, influx from capital dredging works, internal replacement and removal of sediments due to maintenance dredging (Figure 2-1).

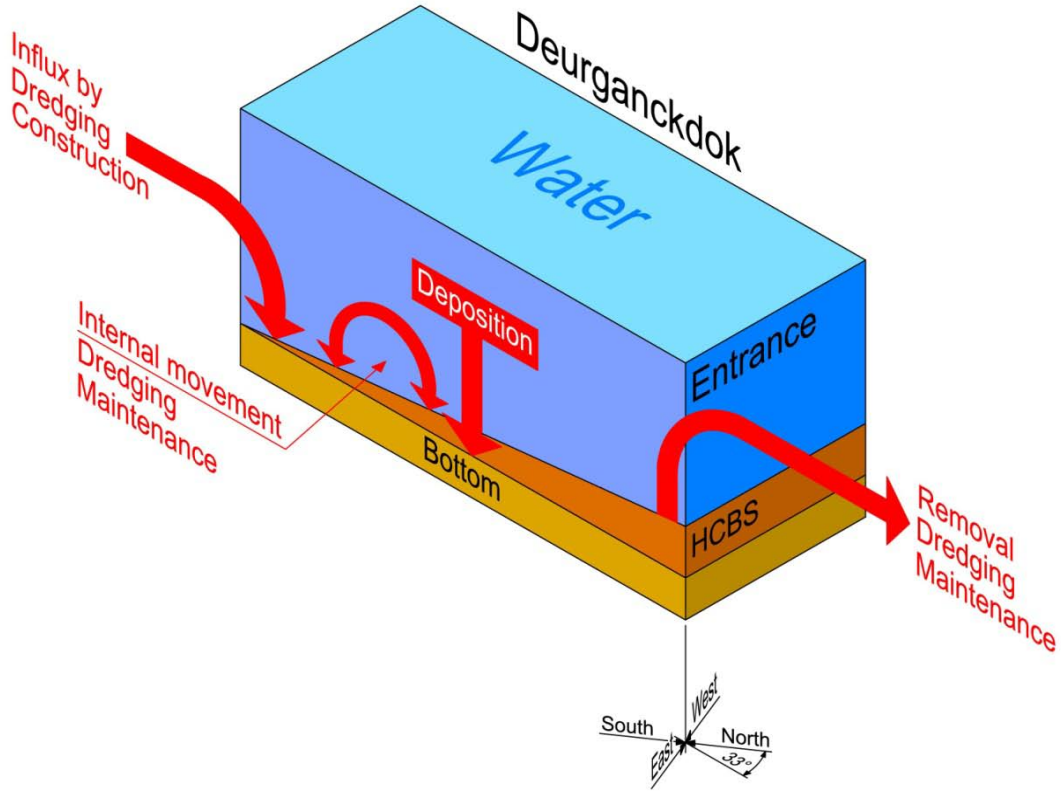


Figure 2-1: Elements of the sediment balance

A net deposition can be calculated from a comparison with a chosen initial condition t_0 (Figure 2-2). The mass of deposited sediment is determined from the integration of bed density profiles recorded at grid points covering the dock. Subtracting bed sediment mass at t_0 leads to the change in mass of sediments present in the dock (mass growth). Adding cumulated dry matter mass of dredged material removed since t_0 and subtracting any sediment influx due to capital dredging works leads to the total cumulated mass entered from the Scheldt river since t_0.

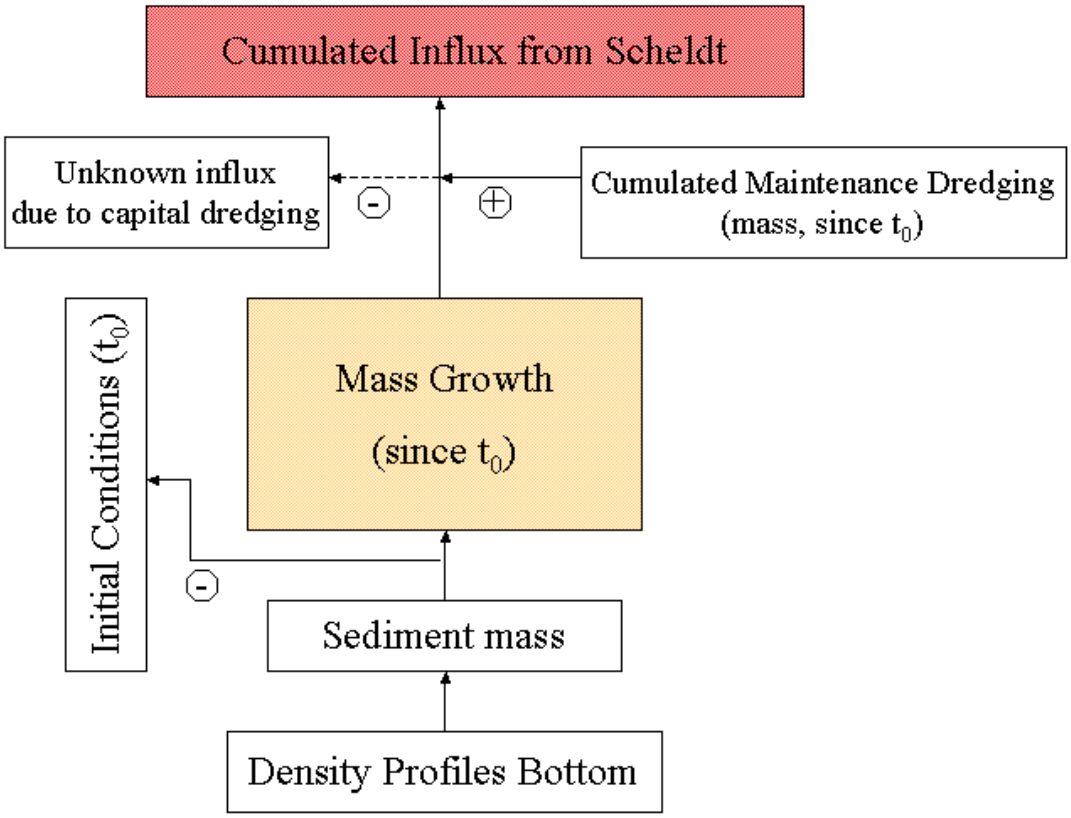


Figure 2-2: Determining a sediment balance

The main purpose of the second part of the study is to gain insight in the mechanisms causing siltation in Deurganckdok. The following mechanisms will be aimed at in this part of the study:

- Tidal prism, i.e. the extra volume in a water body due to high tide
- Vortex patterns due to passing tidal current
- Density currents due to salt gradient between the Scheldt river and the dock
- Density currents due to highly concentrated benthic suspensions

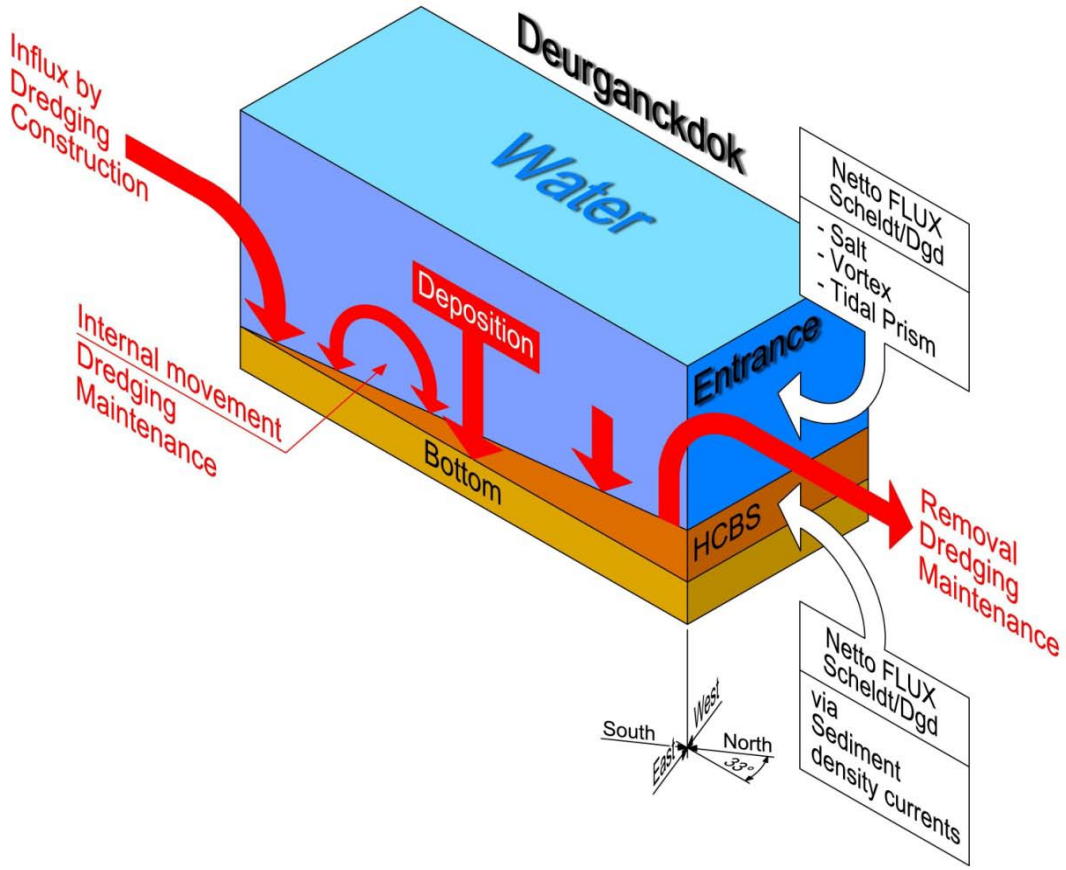


Figure 2-3: Transport mechanisms

These aspects of hydrodynamics and sediment transport have been landmark in determining the parameters to be measured during the project. Measurements will be focussed on three types of timescales: one tidal cycle, one neap-spring cycle and seasonal variation within one year.

Following data are being collected to understand these mechanisms:

- Monitoring the freshwater input (discharge) from the tributaries into the river Scheldt.
- Monitoring salinity and sediment concentration in the Lower Sea Scheldt at permanent measurement locations at Oosterweel, up- and downstream of the Deurganckdok.
- Long term measurement of salinity and suspended sediment distribution in Deurganckdok.
- Monitoring near-bed processes (current velocity, turbidity, and bed elevation variations) in the central trench in the dock, near the entrance as well as near the current deflecting wall location.
- Dynamic measurements of flow pattern, salinity and sediment transport at the entrance of Deurganckdok.
- Through tide measurements of vertical sediment concentration profiles -including near bed high concentrated benthic suspensions.
- Monitoring dredging activities at the entrance channels towards the Kallo, Zandvliet and Berendrecht locks as well as dredging and dumping activities in the Lower Sea Scheldt and Deurganckdok in particular.

In situ calibrations were conducted on several dates to calibrate all turbidity and conductivity sensors.

2.2. Description of the measurement campaign

2.2.1. Purpose of the measurement campaign

The purpose of the measurements was to determine the cross-section distribution of the suspended sediment concentration, the sediment flux and flow velocity during a complete tidal cycle.

Measurements were undertaken on the DGD transect (Figure 2-4), being the cross section between the river Scheldt and the dock itself.

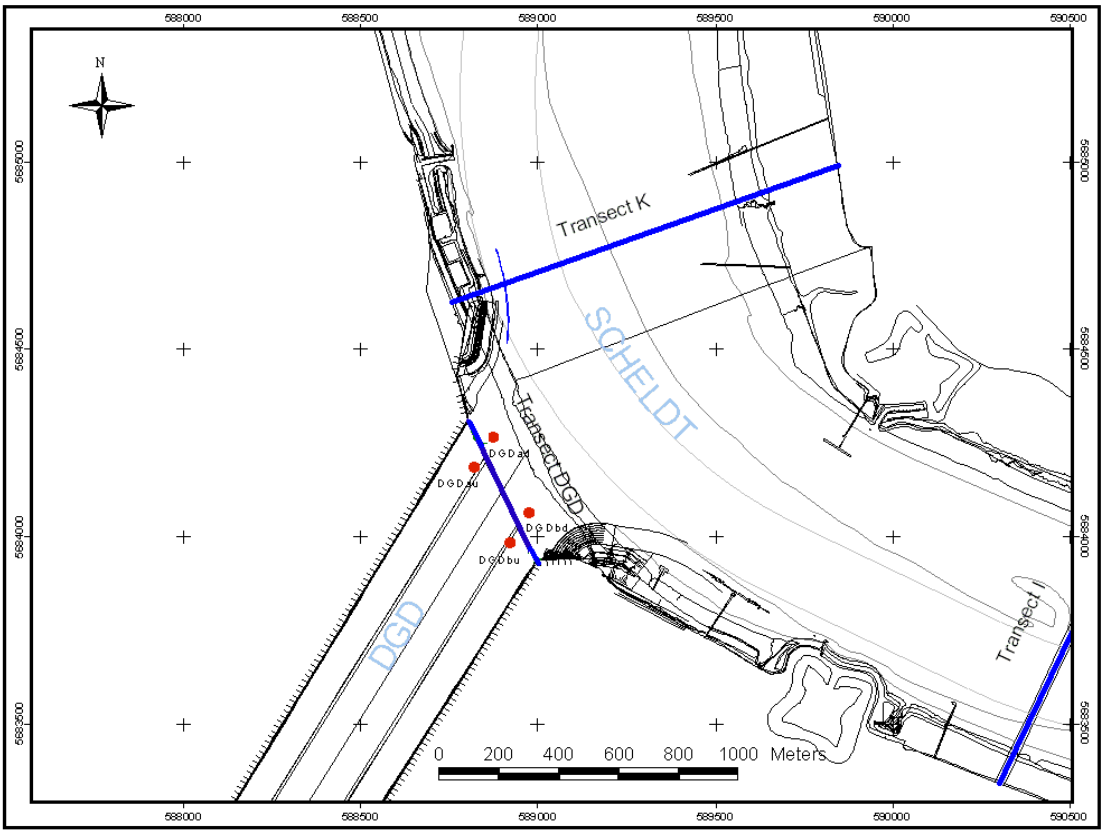


Figure 2-4: Map of sailed transect DGD, calibration points (red) at Deurganckdok (DGD) on 6th of March 2009.

2.2.2. Measurement procedure

Flow velocity, Turbidity, Salinity and Temperature measurements were conducted on the 6th of March from 6h03 MET until 18h50 MET. From the survey vessel Parel II a measurement cycle was completed every 17 minutes. The vessel with a mounted ADCP sailed a fixed transect from the right bank to the left bank and vice versa as a backup transect (Table 2-1). Profiles were gathered to calibrate the ADCP transects for temperature, salinity and suspended sediment concentration to be used in Sediview.

Two calibration profiles were collected for each transect (Table 2-2):

- One before sailing the transect at the bank where the start of the transect was
- One after sailing the transect at the bank where the transect ended

During these calibrations, a fish with a CTD-OBS was lowered to the bottom. The downcast was interrupted at two depths, one in the upper half of the water column (around 4 meters from the water surface) and one at 4 meters above the bottom and the last one at the water bottom (about 10 meters above water surface). At the two first depths samples were taken for calibration, and are used as 'ground truth' for all suspended sediment concentration measurements (OBS and Sediview). The other instruments logged continuously during the downcast. Conductivity, Temperature and Depth was logged by the CTD-probe, while turbidity was recorded by the OBS.

Table 2-1:Transect of the Flow Measurements on 6th of March 2009 (UTM31 ED50)

Measurement location	Left Bank Easting	Left Bank Northing	Right Bank Easting	Right Bank Northing	Avg Length [m]	Avg Course [degr.]
Transect DGD	588 541	5 684 527	588 765	5 684 056	521	335

Table 2-2: Positions of the calibration points for 6th of March 2009 during flood and ebb.

Measurement point	Bank	Easting (UTM31 ED50)	Northing (UTM31 ED50)
Flood			
DGDau	Left	588561	5684369
DGDbu	Right	588682	5684113
Ebb			
DGDad	Left	588623	5684470
DGDbd	Right	588745	5684214

2.3. The equipment

2.3.1. ADCP

The current measurements were conducted using an RD Instruments ADCP 600 kHz Workhorse. For positioning the GPS onboard the vessel Parel II was used. For the measurement of the heading a gyrocompass was installed.

This 600 KHz ADCP system was mounted on a steel pole underneath the central axis of the vessel. The transducer set was looking vertically downwards to the bottom. Transceiver unit and computer system were connected to peripherals such as the differential GPS-receiver, the heave compensator and the gyrocompass.

During the measurements the ADCP constantly measured upstream from the vessel. The acquisition software of Winriver was used. The main settings are given in Table 2-3

Table 2-3: Main Configuration Settings of ADCP

Main configuration settings of ADCP 600kHz Worhhorse:
Cell depth: 0.5 m
Number of cells: 50
Number of Water pings per ensemble: 2
Number of Bottom Track pings per ensemble: 2
Time between ensembles: 0
Averaging: None
Speed of Sound: Fixed 1500 m/s

Main configuration settings of ADCP 600kHz Worhhorse:
Salinity 0 psu
3-beam solution: enabled
Beam angle: 30°

2.3.2. OBS - CTD

A D&A type OBS 3A was used to measure depth, conductivity, temperature and turbidity.

Measured parameters by the OBS 3A sensor: temperature (°C), conductivity (µS/cm), absolute pressure (m), turbidity (NTU).

On Parel II, the OBS 3A device was mounted on a tow fish. The resulting record is filled-up with GPS-time, sample number, and planimetric position of the GPS-receiver. Sampling frequency is 1 reading per second.

The technical details on the OBS 3A are given in the winter calibration Report of the HCBS 1 measurement campaign. (IMDC, 2006a)

2.3.3. Pump Sampler

A water sampler was attached nearby the turbidity sensor taking water samples. Samples were collected in 1 litre sampling bottles. The pumping speed of the water sampler was tested at the start of the measurement campaign on board. Dye was used to time the duration between the intake of the dye and exit at the sampling end of the sampler on board. The duration between intake and exit at the end was 19 seconds.

3. COURSE OF THE MEASUREMENTS

3.1. Measurement periods

At Deurganckdok ADCP tracks were sailed about every 8 minutes for 13 hours, in total 73 cross-sections.

Calibration profiles were taken at 2 locations (left bank, right bank). During every cycle, 1 calibration profile was taken serving as the second calibration of the previous transect and as the first calibration point of the current transect, resulting in a total of 73 profiles. APPENDIX A gives the start and end points of the tracks, the sailed length and the course.

3.2. Hydro-meteorological conditions during the measurement campaign

3.2.1. Vertical tide during the measurements

The vertical tide was measured at the Liefkenshoek tidal gauges. Graphs of the tide at Liefkenshoek on the 6th of March 2009 can be found in APPENDIX B. Table 3-1 gives the most important characteristics (high and low tide) of the tide at those gauges on the 6th of March 2009.

Table 3-1: High and low tide at Liefkenshoek on 6/03/2009

Liefkenshoek Tidal Gauge		
6/03/2009		
	Time [MET]	***Water level [m TAW]***
LW (1)	04:00	0.52
HW (2)	10:20	4.75
LW (3)	17:00	0.48
HW (4)	23:20	4.59

In Table 3-2 the tidal characteristics of the tide on the 6th of March 2009 (HMCZ, 2008) are compared to the average tide over the decade 1991-2000 (AMT, 2003).

Table 3-2: Comparison of the tidal characteristics of 6/03/2009 with the average tide, the average neap tide and the average spring tide over the decade 1991-2000 for Liefkenshoek.

	Neap tide (1991 - 2000)	***Avg Tide (1991 - 2000)***	***Spring Tide (1991 - 2000)***	***Tide 06/03/2009***
Water level [m TAW]				
LW (1)	-	-	-	0.52
HW (2)	4.63	5.19	5.63	4.75
LW (3)	0.39	0.05	-0.18	0.48
HW (4)	-	-	-	4.59
Tidal difference [m]				
Rising (1 to 2)	4.24	5.14	5.81	4.23
Falling (2 to 3)	4.24	5.14	5.81	4.27
Rising (3 to 4)	4.24	5.14	5.81	4.11
Duration [hh:mm]				
Rising (1 to 2)	5:59	5:34	5:16	6:20
Falling (2 to 3)	6:40	6:50	7:02	6:40
Rising (3 to 4)	5:59	5:34	5:16	6:20
Tide (1 to 3)	12:39	12:24	12:18	13:00
Tide (2 to 4)	12:39	12:24	12:18	13:00
Tidal coefficient				
Rising (1 to 2)	0.82	1.00	1.13	0.82
Falling (2 to 3)	0.82	1.00	1.13	0.83
Rising (3 to 4)	0.82	1.00	1.13	0.80

The tidal coefficients from 0.8 up to 0.83 for the measured tide of the 6th of March 2009 indicate that this tide has a tidal range equal as the neap tide for the decade of 1991-2000 and can be classified as such.

3.2.2. Meteorological data

Meteorological data at Woensdrecht (NL) was obtained from the website of the Royal Dutch Weather Institute (KNMI, 2008).

The weather on the 6th of March 2009 was cold and dry. The wind blew from the north west at an average velocity of 4.8 m/s (3 Bft) with maximal gust velocity of 12 m/s. The air temperature varied between -2. and 8°C. The sky was 5/8 cloudy without precipitation.

3.3. Navigation information

An overview of the navigation at the measurement location is given in APPENDIX C.

3.4. Remarks on data

Shipwakes were removed from the data where possible. Transects 3031 and 3042 were excluded for processing because their short length due to editing.

4. PROCESSING OF DATASETS

4.1. Calibration of the OBS turbidity sensor

A crucial aspect of the accuracy and reliability of the data concerns the calibration of the OBS turbidity sensor. The calibration of the OBS sensor is necessary to convert turbidity into Suspended Sediment Concentration (SSC). An in situ calibration of the OBS3A was performed. At some depths water samples were taken by the pump sampler and were analysed by a laboratory for SSC. These SSC were used as 'ground truth' to calibrate the OBS turbidity sensor. The calibration curve can be found in report 2.34 (IMDC, 2009c).

4.2. Methodology of processing of the ADCP data with Sediview

DRL Software's Sediview was used to process the ADCP data. Sediview is designed to derive estimates of suspended sediment concentration throughout the water column using acoustic backscatter data obtained by ADCP's manufactured by RD Instruments of San Diego, California.

4.2.1. Acoustic backscatter theory

The acoustic theory governing backscatter from particles suspended in the water column is complex, but the following simplified formula serves to introduce the main factors that are relevant:

$$E = SL + SV + Constant - 20\log(R) - 2\alpha_w R$$

Where:

- E = echo intensity,
- SL = transmitted power,
- SV = backscatter intensity due to the particles suspended in the water column,
- α_w = a coefficient describing the absorption of energy by the water,
- R = the distance from the transducer to the measurement bin.

The term 20log(R) is a simple geometric function that accounts for the spherical spreading of the beam. The constant is required because each ADCP has specific performance characteristics.

In order to measure the suspended sediment concentration in the water column it is necessary to relate the backscattered sound intensity to the mass concentration in the water. For the purposes of measuring solids concentration on site, it can be shown that the relationship is as follows (derived from Thorne and Campbell, 1992 and Hay, 1991 in DRL (2003)):

$$Log_{10} M_r = \{dB + 2r(\alpha_w + \alpha_s) - K_s\} S^{-1}$$

Where:

- $M(r)$ = mass concentration per unit volume at range, r
- S = relative backscatter coefficient
- K_s = site and instrument constant
- dB = the measured relative backscatter intensity (corrected for beam spreading)
- α_w = water attenuation coefficient
- α_s = sediment attenuation coefficient, which is a function of the effective particle size

In this expression there are four unknowns: S, Ks, α_w and α_s. These parameters are to be determined within Sediview (APPENDIX E).

4.2.2. Water sampling and transect sailing

To calibrate Sediview for suspended sediment concentration, two water samples are taken at the beginning and at the end of each transect (see 3.1). Both samples are taken within the range of reliable data of the ADCP. For the near-surface sample this means in bin 3 or 4, for the near-bed sample this means at about one or two meter above the sidelobe.

Water sampling is done together with CTD-OBS measurement in order to have two independent suspended sediment concentration measurements for each sample. OBS measurements were compared to the water samples and recalibrated as mentioned in § 4.1. The water samples were used for Sediview calibration, while cross-calibrated OBS measurements were used as a back up check. The salinity and temperature was used to compute the acoustic water absorption (water attenuation coefficient). All water samples were analysed as is described in 4.2.3.1.

4.2.3. Calibration for suspended sediment concentration within Sediview

4.2.3.1. Calibration workset

The calibration workset consists of ADCP-files, sampling times, sampling depths, SSC obtained from water samples and SSC, temperature and salinity obtained from CTD-OBS readings.

The suspended sediment concentration of the water samples was determined. One-litre samples were filtered over a preweighed desiccated 0.45 micron filter, after which the filter is dried in an oven at 105°C, cooled and weighted (NEN 6484).

4.2.3.2. SSC calibration per ensemble pair

In the Sediview calibration process the following parameters must be defined: the site and instrument constant (Ks), the relative backscatter coefficient (S) and the effective particle size per ensemble-pair (near-surface sample and near-bed sample) in order to fit the Sediview-estimate with the suspended sediment concentration of the water samples. These parameter sets may not differ too much from the previous parameter sets, as the environmental conditions will not change that much over a small time interval. To obtain a smooth progress in time of Ks, S and effective particle size an iterative approach is used.

4.2.4. Sediview configuration

4.2.4.1. Discharge and suspended sediment concentration estimates

The ADCP measures most of the water column from just in front of the ADCP to 6% above the bottom when the beam angle is 20° and to 12% above the bottom when the beam angle is 30°. The shallow layer of water near the bottom is not used to compute discharge and suspended sediment concentration due to side-lobe interference. When the ADCP sends out an acoustic pulse, a small amount of energy is transmitted in side lobes rather than in the direction of the ADCP beam. Side lobe reflection from the bottom can interfere with the water echoes and can give erroneous data. The thickness of the side lobe layer for the ADCP used during this campaign is 12% of the distance from the transducers to the bottom.

Near the banks the water depth is too shallow for the ADCP to profile.

For each of those unmeasured regions, an estimate of the discharges and suspended sediment concentration is made. The measured and unmeasured regions in the cross section are shown in Figure 4-1 and Figure 4-2.

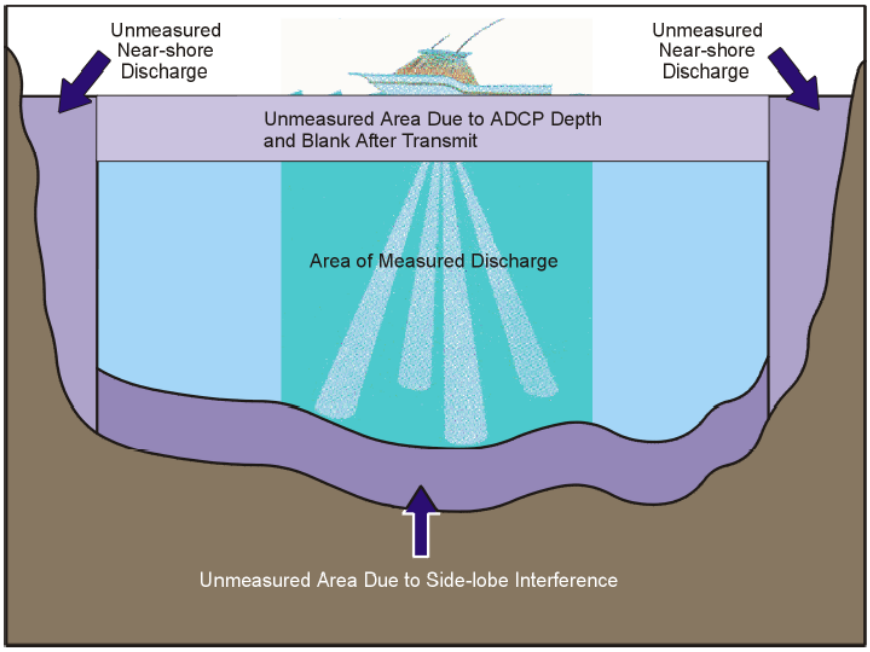


Figure 4-1: Unmeasured regions in the cross section (from RD Instruments, 2003)

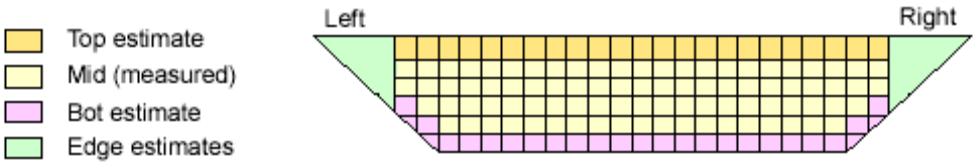


Figure 4-2: Measured and estimated discharges and sediment fluxes within Sediview (DRL, 2005)

4.2.4.1.1 Top/bottom estimates

The sediment concentration and discharge at the top of the water column is assumed to be the same as the concentration and discharge in the first measured bin.

The sediment concentration between the bottom and the lowest valid bin is assumed to be an increase of the lowest valid bin. As the concentration grows approximately linear from the lowest valid bin to the bottom, and as Sediview/Matlab uses a constant concentration factor for these deepest bins, we use a concentration factor of 125% (Figure 4-3). An overview of the used power concentration factor is given in APPENDIX E.

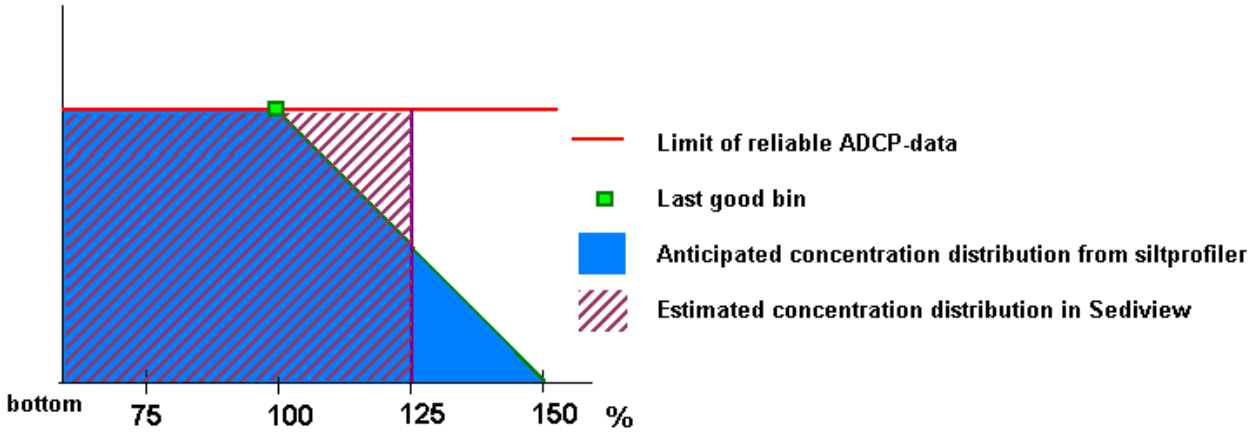


Figure 4-3: Principal of bottom estimate of the sediment concentration in Sediview

Table 4-1: Extrapolation methods for top and bottom variables

Variable	***Top***	***Bottom***
Discharge Method	Constant	Power
Concentration factor	100%	125%

The discharge for the bottom water layer is estimated by using the power method. Chen (1991) discusses the theory of power laws for flow resistance. Simpson and Oltmann (1990) discuss Chen's power law equivalent of Manning's formula for open channels (with b=1/6) (RD Instruments, 2003).

$$u/u^* = 9.5(z/z_0)^b$$

Where:

- z = Distance to the channel bed [m]
- u = Velocity at distance z from bed [m/s]
- u* = Shear velocity [m/s]
- z_0 = Bottom roughness height [m]
- b = Exponent (1/6)

4.2.4.1.2 Edge estimates

The shape of the edges of the cross section is assumed to be near triangular due to the banks of the river Scheldt. Five data ensembles are to be averaged to determine the left and right bank mean velocities used for calculation of edge estimates.

The distance from start- and endpoint to the bank is calculated from the theoretical start- and endpoint at the bank to the effective start- and endpoint. The theoretical points are taken at the banks.

Table 4-2: Reference points at the end of the mud flats on left and right bank

Coordinates (UTM31 ED50)	***Easting Left bank***	***Northing Left bank***	***Easting Right bank***	***Northing Right bank***
Transect DGD	588 541	5 684 527	588 765	5 684 056

The formula for determining the near shore discharge is:

$$Q_{shore} = CV_m Ld_m \qquad [m^3/s]$$

Where:

C = Coefficient (0.35 for triangular, 0.91 for rectangular shape)

V_m = Mean water velocity in the first or the last segment [m/s]

L = Distance from the shore to the first or the last segment specified by the user [m]

d_m = Depth of the first or the last segment [m]

The coefficient (C) has been set to 0.91 (triangular shape of the banks).

4.2.4.2. Contour plots of the transects

All contour plots show perpendicular and parallel projected values on the straightened sailed transects. The heading of the straightened sailed transect is defined by picking 2 points in the straight part of the line after having corrected the heading of the ADCP compass. The compass offset is derived from a comparison of the ADCPs bottom track with the external GPS data.

4.2.5. Output

General transect information containing start-stop coordinates of each sailed transects with stop time, track length and heading is given in APPENDIX A.

In APPENDIX F, four contourplots were generated for each transect showing the distribution of suspended sediment concentration & sediment flux as well as the flow velocity perpendicular and parallel to the transect. The following conventions were used:

- Distances on the X-axis were referenced to the starting point of the transect, the start of the sailed transect is always at distance equal to zero.
- Left bank is always shown left, right bank on the right side. For transect DGD, left bank was taken to be the western quay wall and the right bank to be the eastern quay wall considering the dock as being a tributuary to the Scheldt river.
- Perpendicular flow velocities and fluxes are positive for downstream flow (ebb, out of Deurganckdok), negative for upstream flow (flood, inbound).
- Parallel flow velocities are positive for flow going from the left bank to the right bank, and negative for flow going from the right bank to the left bank.
- Absolute Depth is given in meters above TAW.

Also a depth-averaged velocity plot was generated for the flow velocity perpendicular to the transect. (see APPENDIX F).

Tables in APPENDIX G give the values for discharges, sediment fluxes and the average measured SSC for the total cross-section.

- Mid = measured part of the cross-section
- Top = top part of the cross-section
- Bottom = bottom part underneath the sidelobe
- Edge (left, right) = edge estimates to left & right bank
- Total = Mid+Top+Bottom+ Edge values

The graph in APPENDIX H gives the temporal variation of the total flux, total discharge and total measured SSC for the whole through tide measurement at Deurganckdok.

5. PRELIMINARY ANALYSIS OF THE DATA

5.1. The survey of March 6th 2009

As Deurganckdok is situated along the part of the river Scheldt under tidal influence, it is subject to complex current fields near its entrance. The measured current field shows a vortex pattern depending on the tidal phase. During ebbing tide the vortex at the entrance of the dock is a counter-clockwise one and during rising tide it is a clockwise one. This is shown in the contour plots by inflow (negative) on the western side (left) and outflow on the eastern side of the entrance during ebbing tide and vice versa for flooding tide. (APPENDIX F).

During slack water we see a current field with opposing current directions in the upper part of the water column compared to the lower part of the water column. For high water, there is an inflow (negative) near the bottom and outflow (positive) near the surface. This particular pattern is probably an example of the expected salt density currents occurring near the entrance of Deurganckdok. The same event is seen at low water when the dock contains waters of higher salinity than the river; here we see an outflow near the bottom and inflow near the surface.

From the backscatter interpretation into suspended sediment concentration, one can notice in general a higher concentration during high water and during rising tide compared to during ebb tide. The highest SS concentrations (incoming and outgoing) occur around HW.

It can also be noticed that during the complete measurement cycle the incoming water has a higher SSC than the outgoing water (see Table 5-1, Figure 5-1). The incoming averaged suspended sediment concentrations range from 36 mg/l up to 173 mg/l during ebb and from 48 mg/l to 135 mg/l during flood, whereas the outgoing concentrations range from 20 to 59 mg/l during ebb and from 36 to 87 mg/l during flood.

Table 5-1 Average SSC's over the sailed transect

	Concentration [mg/l]								
	overall SSC			***incoming SSC***			***outgoing SSC***		
Tide	***min***	***average***	***max***	***min***	***average***	***max***	***min***	***average***	***max***
Ebb	26	47	109	36	68	173	20	32	59
Flood	51	71	100	48	82	135	36	55	87

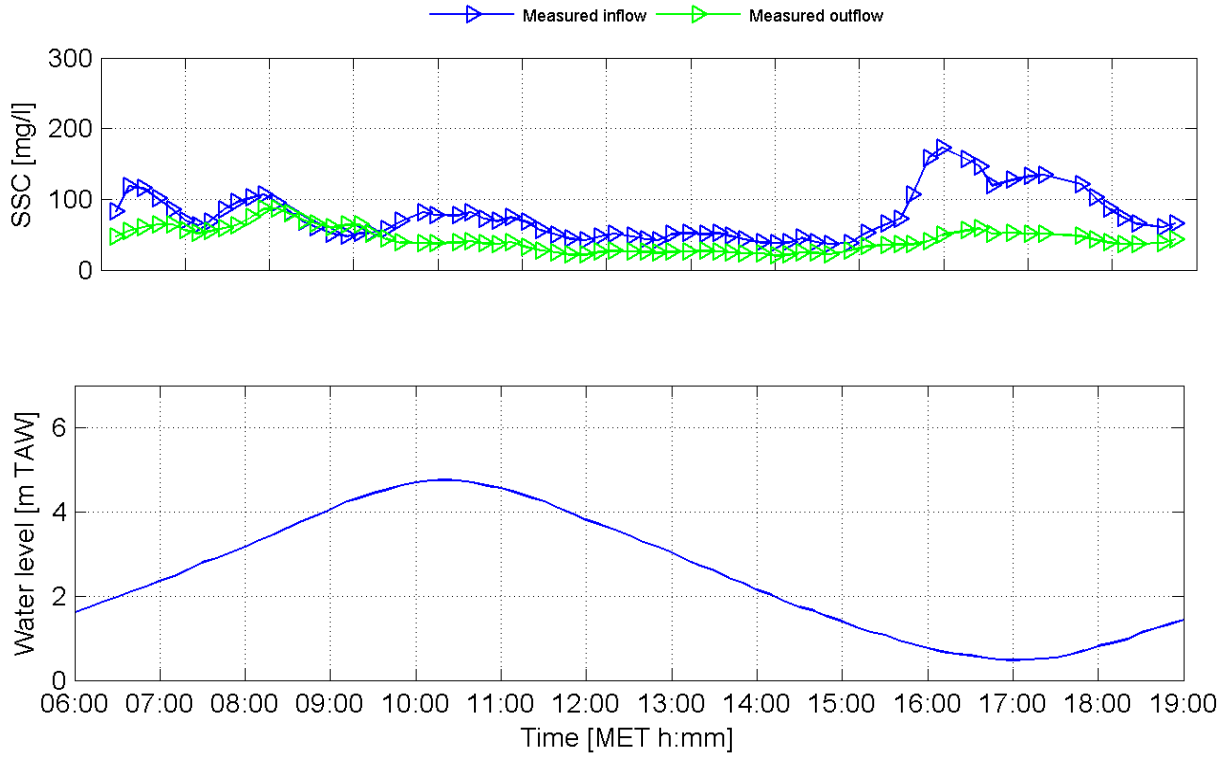


Figure 5-1 Average incoming and outgoing SSC over a complete tidal cycle on 6/03/2009

Considering the sediment fluxes, Figure 5-2-a shows that residual incoming transport is dominating during flood and lasts until approximately HW. Almost no residual outgoing sediment transport can be observed during the measurement campaign. In the first hour after high water there is a residual incoming sediment flux even though the resulting discharge is outgoing at that moment (see Figure 5-2-b). To visualize in- and outflow, the absolute values of the inflow have been used. If the measured total line is negative, it means that measured inflow is greater than measured outflow. Or a negative measured total value means a total inflow/influx, a positive measured total value means a total outflow/outflux.

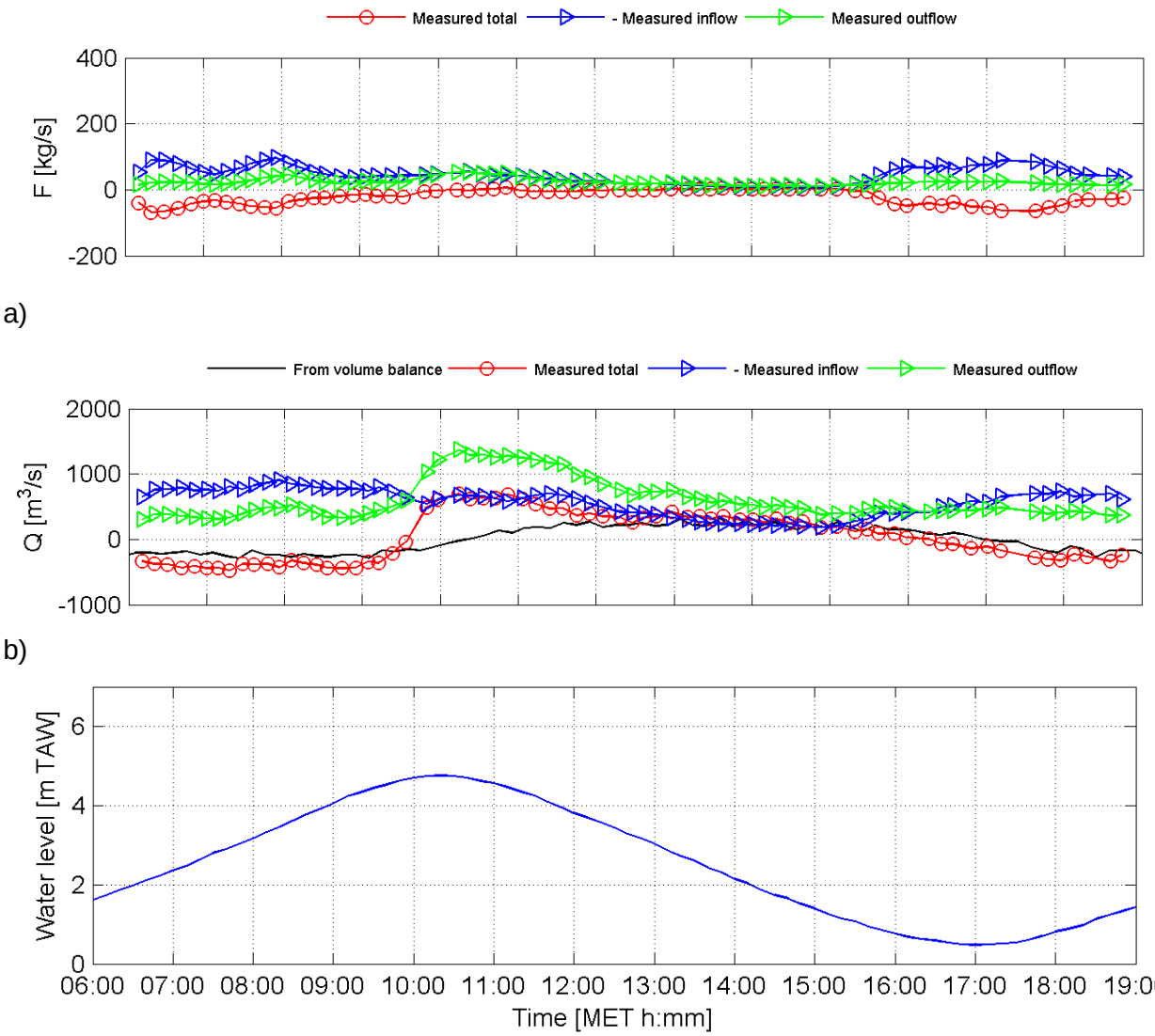


Figure 5-2 Total in/out/net flux a) and in/out/net discharge b) at DGD on March 6th 2009.

During HW the outflow is approximately twice as high (+-1400 m³/s) as during LW (see Figure 5-2-b). Incoming density currents near the bottom due to a higher salinity in the river than in the dock reach their maximum around slack tide on the Scheldt at approximately 1 hour after high water (see Figure 5-7-i).

5.2. Intercomparison with earlier surveys at DGD

Since 2005, IMDC has organised several through tide measurement campaigns at the entrance of Deurganckdok. The course and results of the campaigns were described in IMDC rapports and are listed in Table 5-2. Table 5-2 gives also an overview of the tidal phase during the campaigns. Conditions near the entrance of Deurganckdok have been simulated in Delft3D and processed by IMDC (2006n) in order to compare simulation with observed data.

5.2.1. Fresh water discharge

The fresh water discharges at Schelle were calculated from the tributaries, which were recorded during the measurement campaigns. The calculation procedure is described in AZ (1974) and is based on the use of correction coefficients that take in account the surface of the hydrological basins. The daily fresh water discharges at Schelle are listed in Table 5-2. The evolutions of the fresh water discharge at Schelle for all former campaigns are shown in Figure 5-3.

Table 5-2: Hydrological conditions during through tide ADCP measurements at the entrance of DGD

Tidal Coefficient at tidal gauge: Liefkenshoek				
PROJECT (DESCRIPTION)	***Date***	***Tidal coefficient***	***Tidal phase***	***Daily fresh water discharge at Schelle [m³/s]***
HCBS 1 (IMDC, 2006m)	17/11/2005	1.10	Spring	91
HCBS 2 (IMDC, 2006c)	22/03/2006	0.97	Average	94
HCBS 2 (IMDC, 2007o)	27/09/2006	1.03	Average	33
DGD 1 (IMDC, 2008a)	24/10/2007	1.02	Average	46
DGD 2 (IMDC, 2008k)	11/03/2008	1.17	Spring	286
DGD 3 (IMDC, 2008u)	19/06/2008	1.15	Spring	93
DGD 3 (IMDC, 2008v)	26/06/2008	0.97	Average	69
DGD3 (IMDC 2008x)	24/09/2008	0.81	Neap	75
DGD 3 (IMDC, 2009a)	30/09/2008	1.08	Spring	82
DGD 3 (IMDC, 2009e)	02/12/2008	0.98	Average	154
DGD 3(IMDC,2009f)	10/12/2008	0.97	Average	222
DGD 3(IMDC,2009i)	06/03/2009	0.82	Neap	99

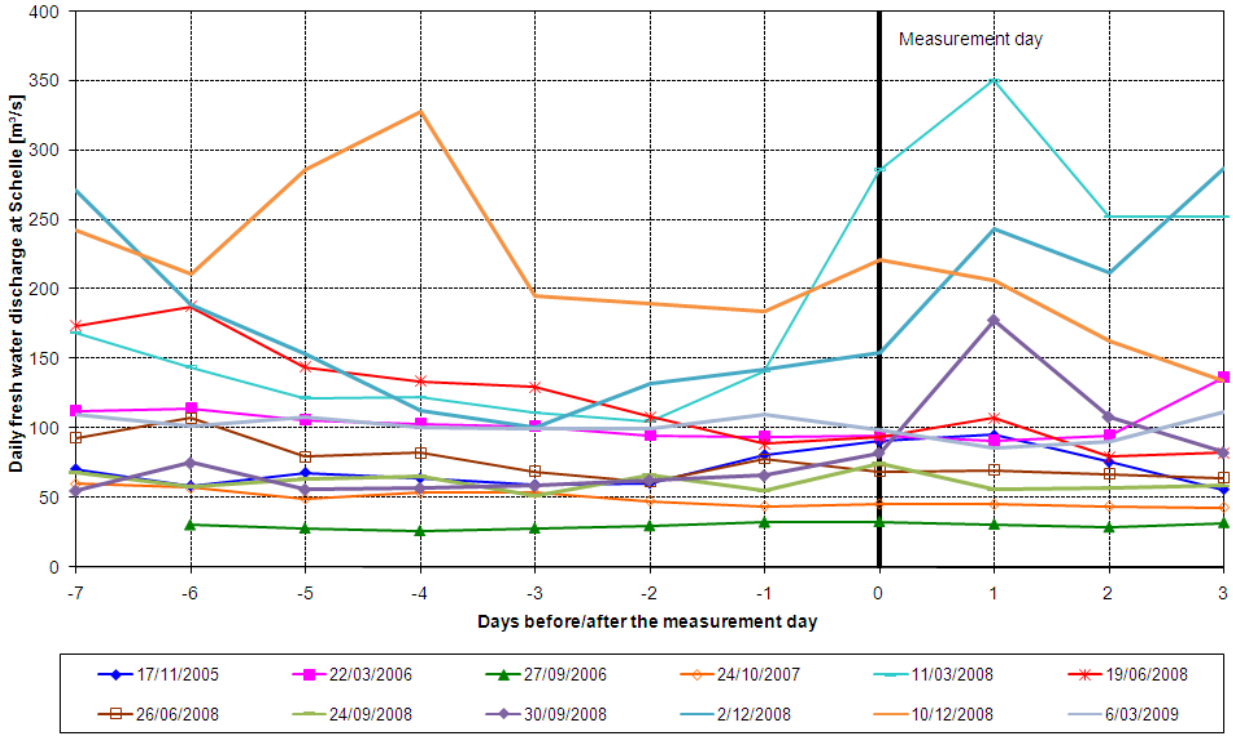


Figure 5-3: The daily fresh water discharge evolution at Schelle before and after a measurement day.

The results presented in Figure 5-4 are based on a long-term simulation over a period of 30 year (1971-2000) with the SIGMA-model for MKBA (IMDC, 2006r). The mean discharge is the annual average ten days' discharge, calculated with simulated long-term measurements. The high and low discharges are also annual ten days' discharges, and are calculated as mean discharge +2σ and mean discharge -2σ.

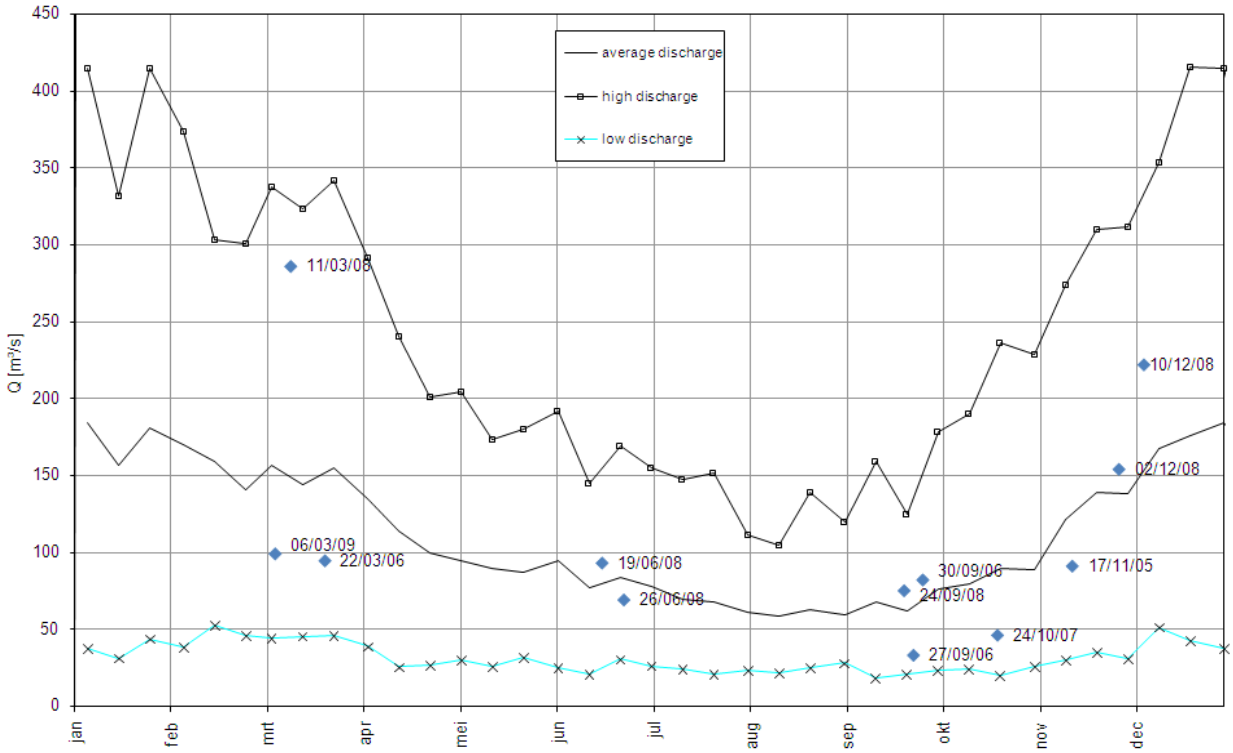


Figure 5-4: Mean fresh water discharge over a period of 30 year (1971-2000) with the monthly discharge of 2008-2009

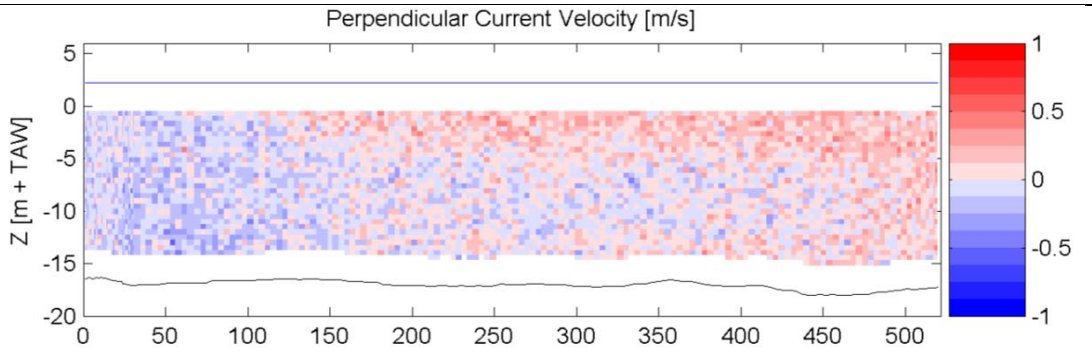
5.2.2. Sediment distributions and current pattern around HW

In Figure 5-5 and Figure 5-6 the 10 different measurement campaigns have been compared for about 3 hours after high water. Sediment distributions as well as current pattern in the cross section are similar for all campaigns. The western side of the dock is situated at the left of these figures, the eastern side at the right. The sediment distribution and current pattern of this neap tide measurement is less pronounced than the patterns during average and spring tide measurements.

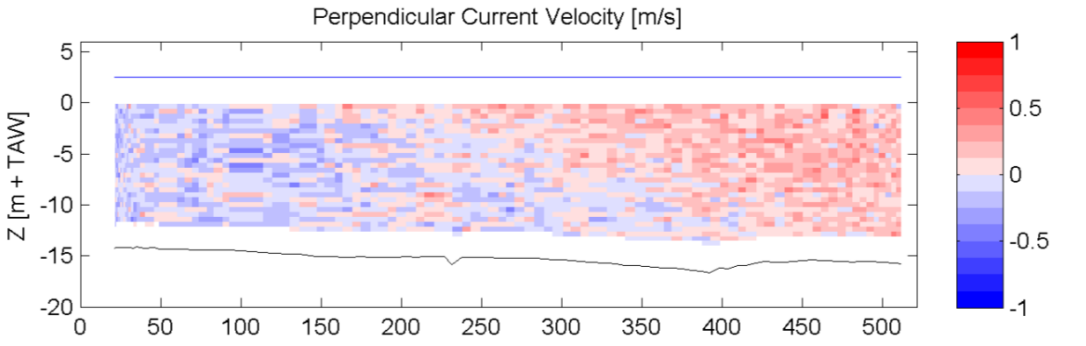
In Figure 5-7 and Figure 5-8 the circulation pattern and sediment concentration have been compared for the same days but at about 1h after high water. Again the current pattern is almost identical between the different days with a salt wedge intruding near the bottom of the dock and compensatory outflow of fresher water near the surface. Except for the measurements at 11/03/2008 and 02/12/2008, the sediment distributions are very similar between the different campaigns.

The measurements around HW on 11/03/2008 show a very different sediment distribution compared to the other measurement days. The sediment concentrations are considerably higher and this almost throughout the whole water column. These high concentrations can also be seen on the other transects on 11/03/2008, so it is very unlikely these concentrations can be attributed to a shipwake.

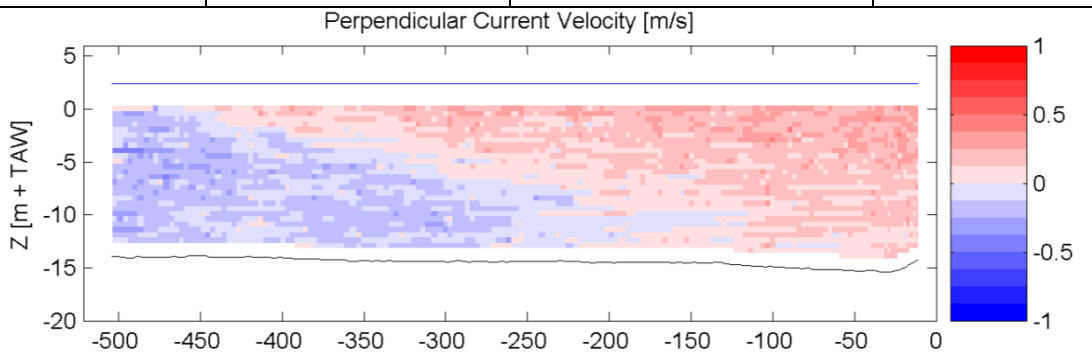
These high concentrations may partly be attributed to the high fresh water discharges, recorded on 11/03/2008 near Schelle (see Figure 5-4), but most particular to the extreme spring tide and stormy weather on that day. Compared to the other tides, the waterlevel at 11/03/2008 increases slower during the first hours of the flood. As a result, there is a huge intake of water during the second part of the flood phase. It is during these last hours of the flood, that those high concentrations were measured.



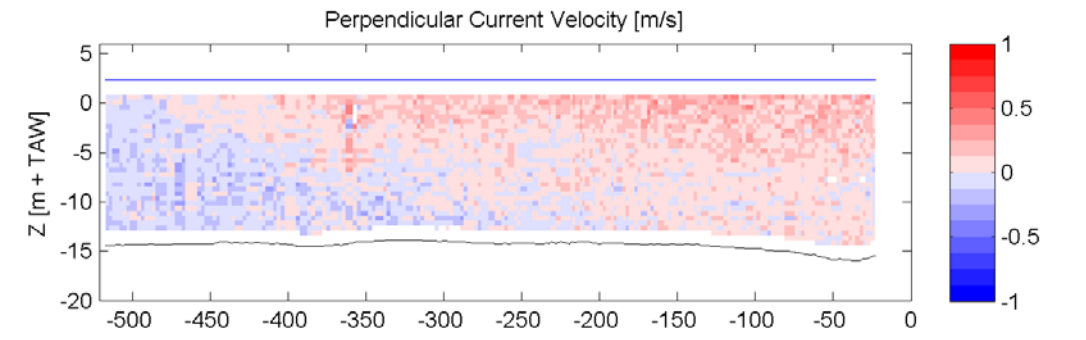
a)	17/11/2005	3 hrs after HW	Tidal coefficient: 1.10	Fresh water: 91 m³/s



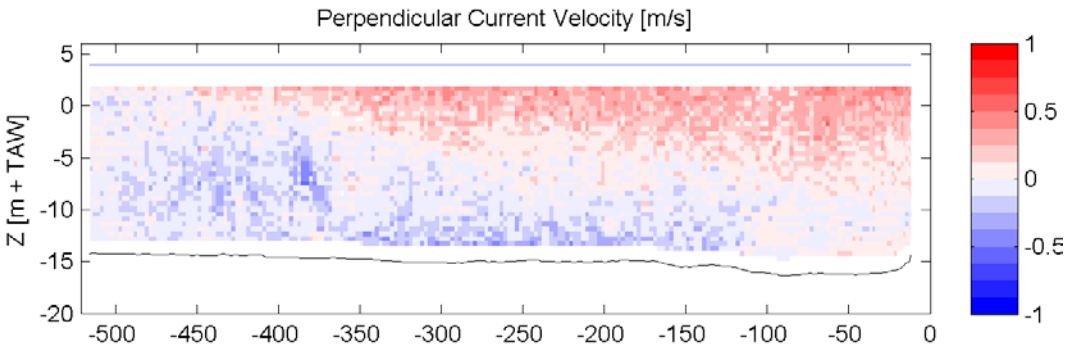
b)	22/03/2006	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 94 m³/s



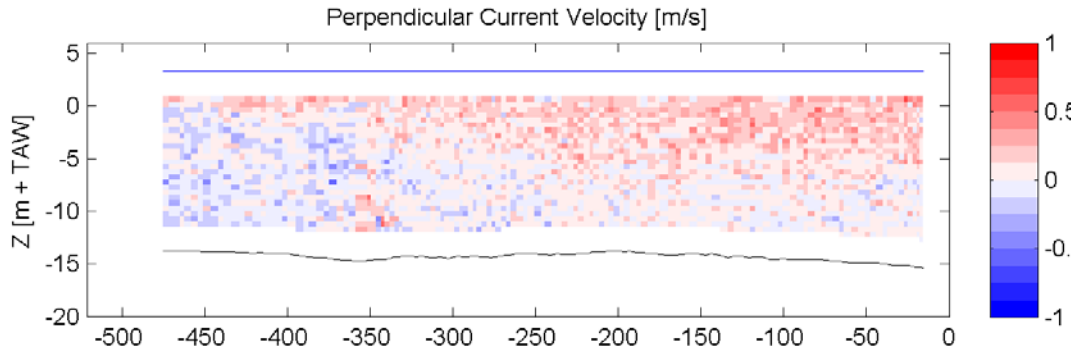
c)	27/09/2006	3 hrs after HW	Tidal coefficient: 1.03	Fresh water: 33 m³/s



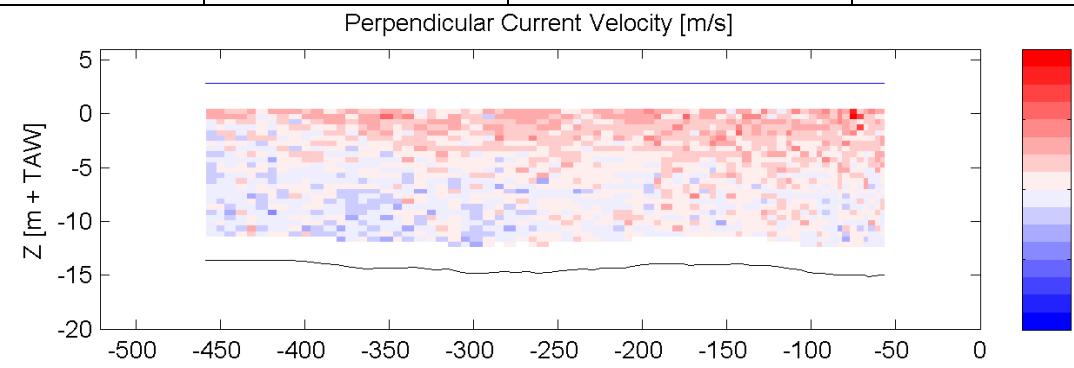
d)	24/10/2007	3 hrs after HW	Tidal coefficient: 1.02	Fresh water: 46 m³/s



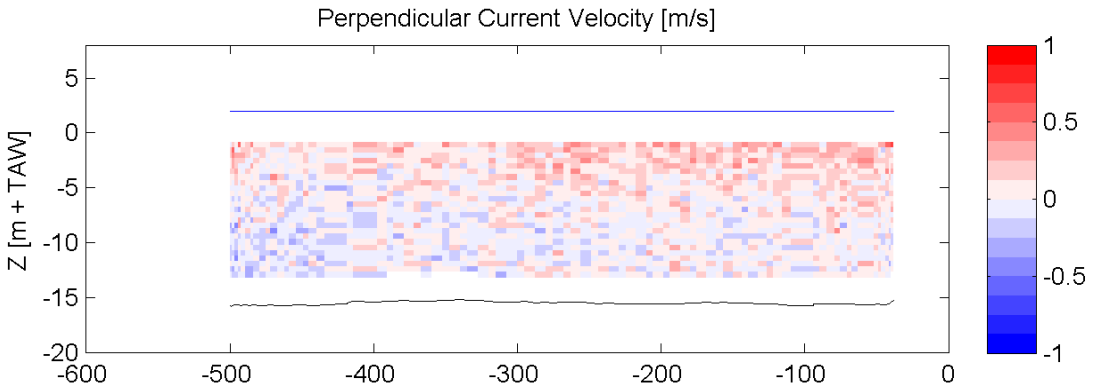
e)	11/03/2008	3 hrs after HW	Tidal coefficient: 1.17	Fresh water: 286 m³/s



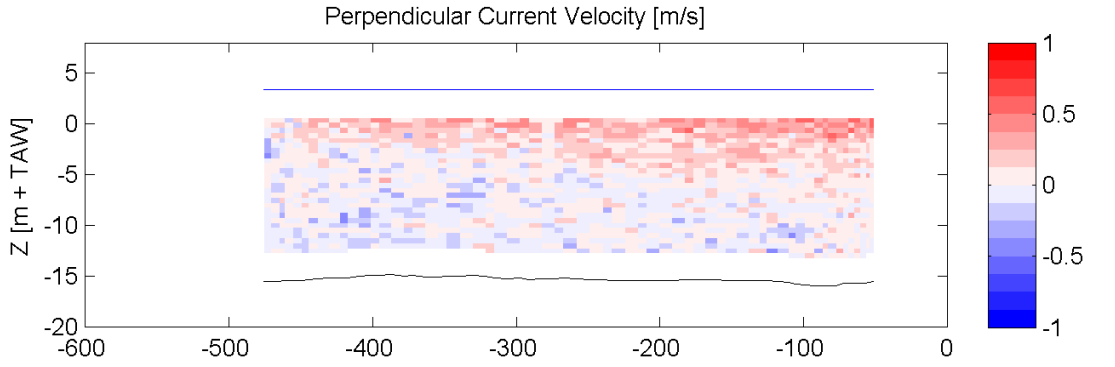
f)	19/06/2008	3 hrs after HW	Tidal coefficient: 1.15	Fresh water: 93 m³/s



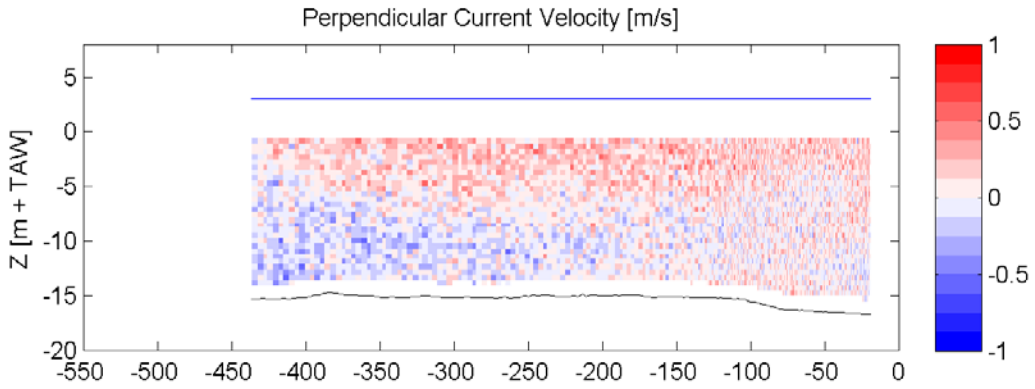
g)	26/06/2008	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 69 m³/s



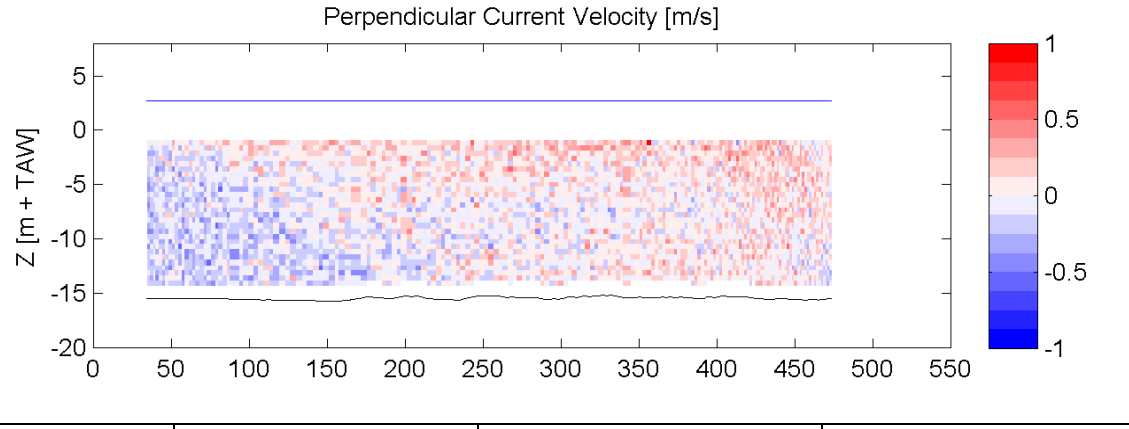
h)	24/09/2008	3 hrs after HW	Tidal coefficient: 0.81	Fresh water: 75 m³/s



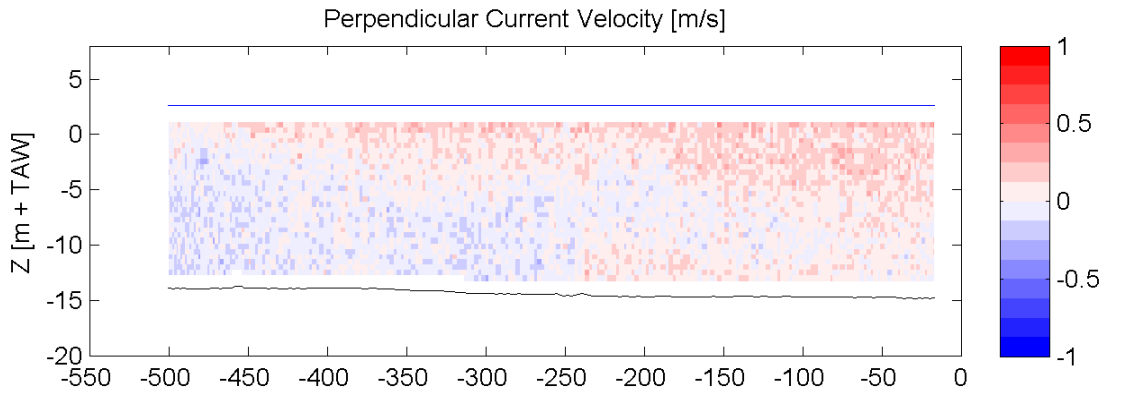
i)	30/09/2008	3 hrs after HW	Tidal coefficient: 1.08	Fresh water: 82 m³/s



j)	02/12/2008	3 hrs after HW	Tidal coefficient: 0.98	Fresh water: 154 m³/s

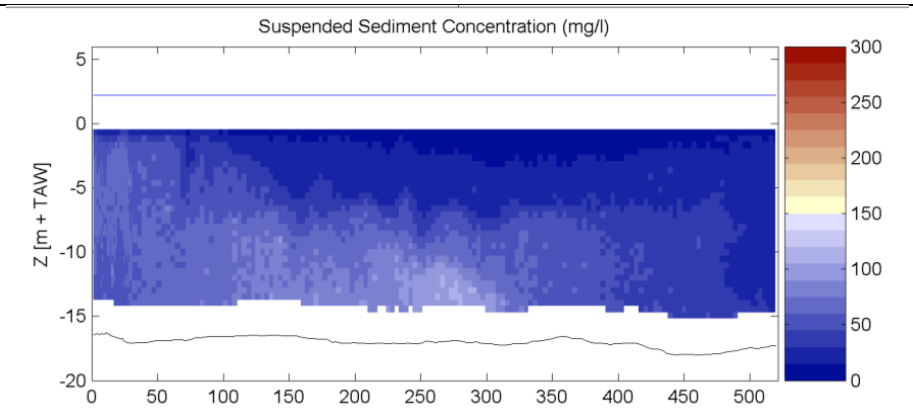
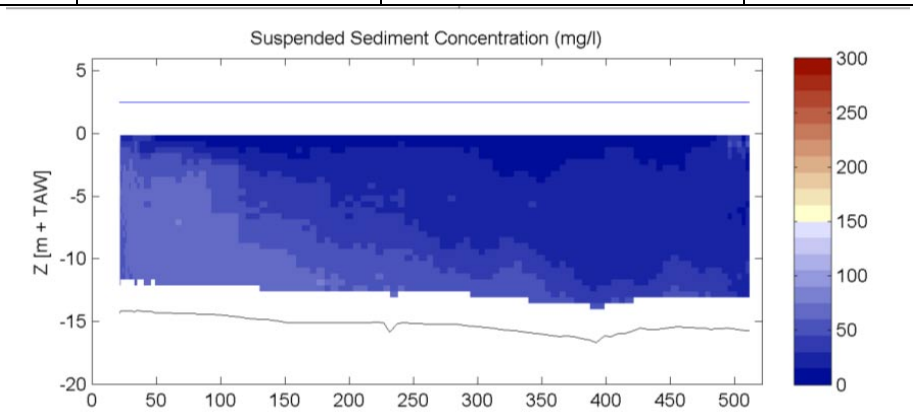
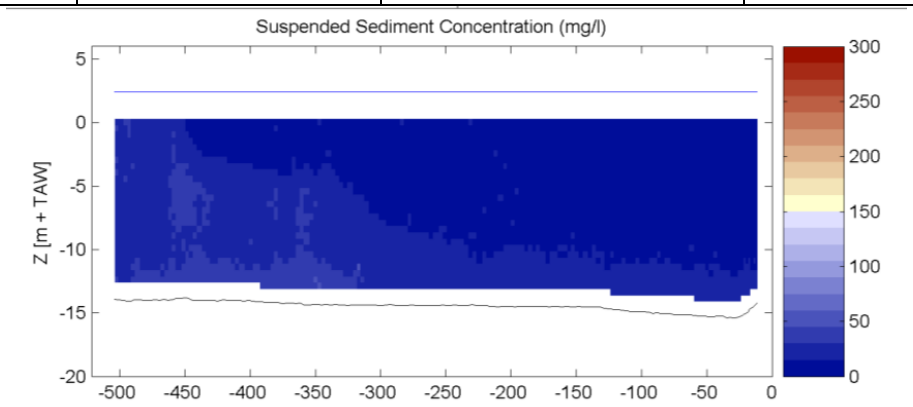


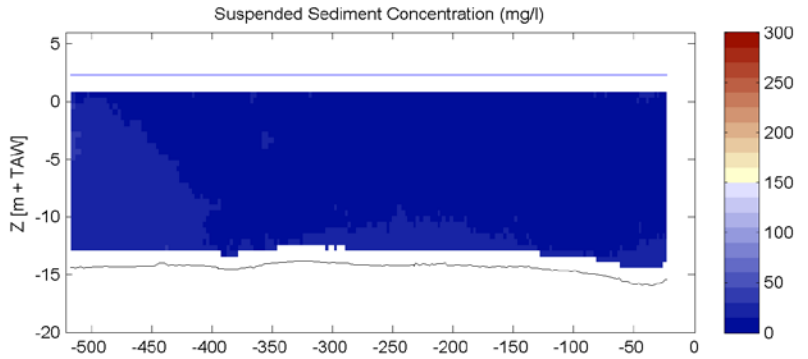
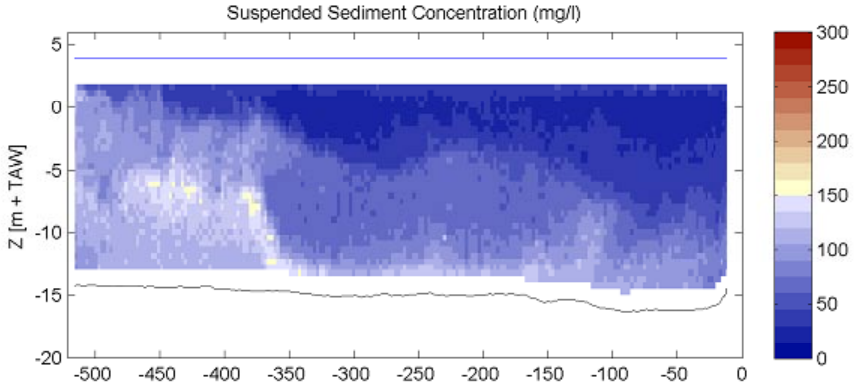
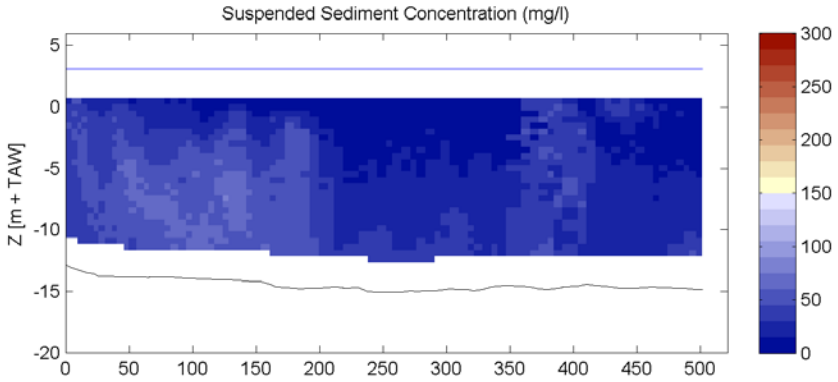
k) 10/12/2008	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 222 m³/s

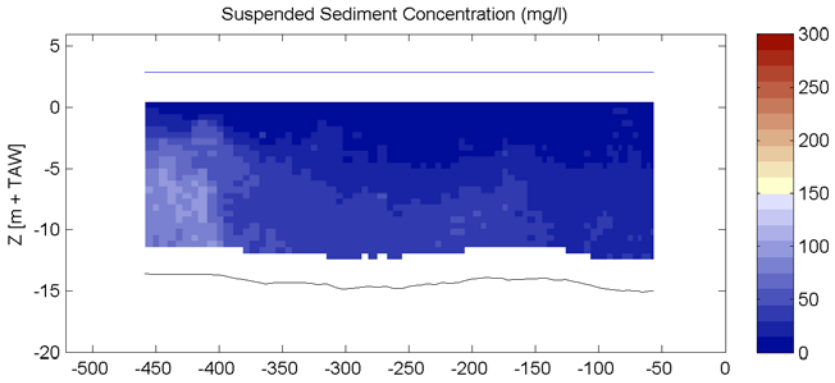
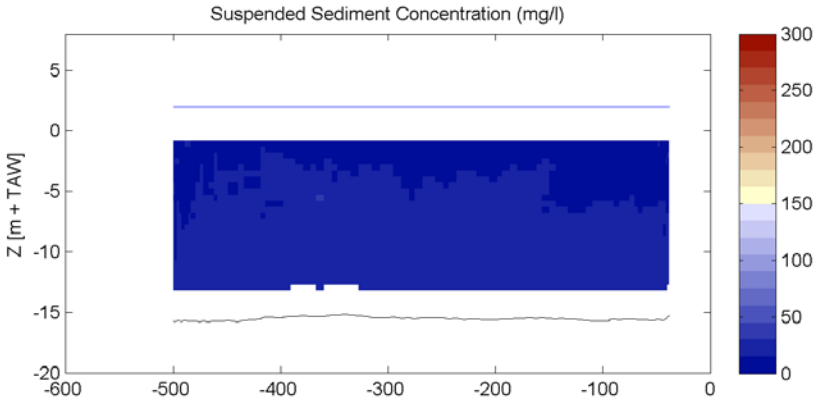
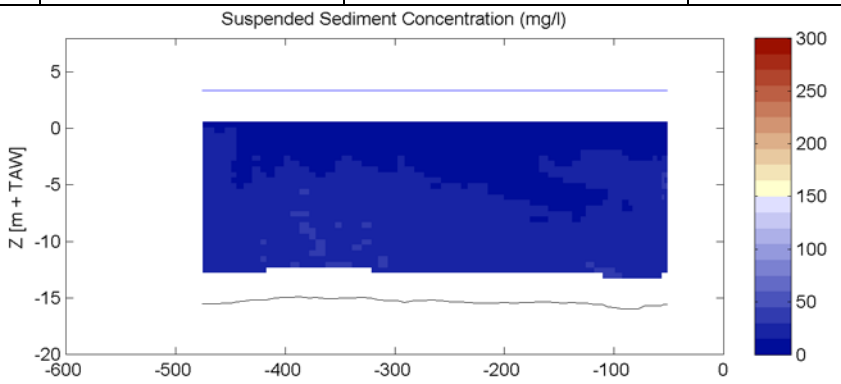


l) 06/03/2009	3 hrs after HW	Tidal coefficient: 0.82	Fresh water: 99m³/s

Figure 5-5: a) Perpendicular current velocity on 17/11/2005, b) on 22/03/2006, c) on 27/09/2006, d) on 24/10/2007, e) on 11/03/2008, f) on 19/06/2008, g) on 26/06/2008 h) 24/09/2008, i) on 30/09/2008, j) on 02/12/2008, k) on 10/12/2008 and l) on 06/03/2009 at 3h after high water

				
a)	17/11/2005	3 hrs after HW	Tidal coefficient: 1.10	Fresh water: 91 m³/s
				
b)	22/03/2006	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 94 m³/s
				
c)	27/09/2006	3 hrs after HW	Tidal coefficient: 1.03	Fresh water: 33 m³/s

				
d)	24/10/2007	3 hrs after HW	Tidal coefficient: 1.02	Fresh water: 46 m³/s
				
e)	11/03/2008	3 hrs after HW	Tidal coefficient: 1.17	Fresh water: 286 m³/s
				
f)	19/06/2008	3 hrs after HW	Tidal coefficient: 1.15	Fresh water: 93 m³/s

				
g)	26/06/2008	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 69 m³/s
				
h)	24/09/2008	3 hrs after HW	Tidal coefficient: 0.81	Fresh water: 75 m³/s
				
i)	30/09/2008	3 hrs after HW	Tidal coefficient: 1.08	Fresh water: 82 m³/s

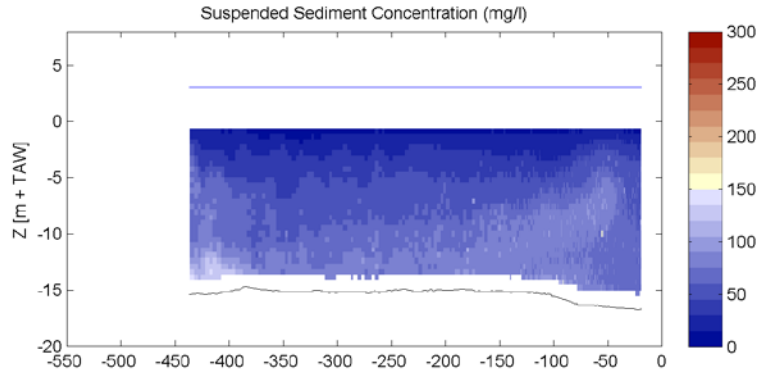
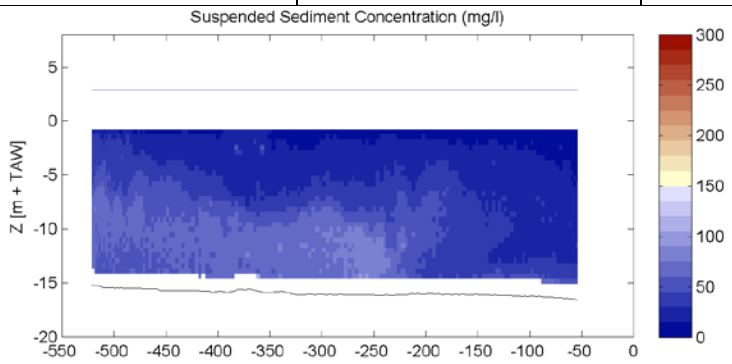
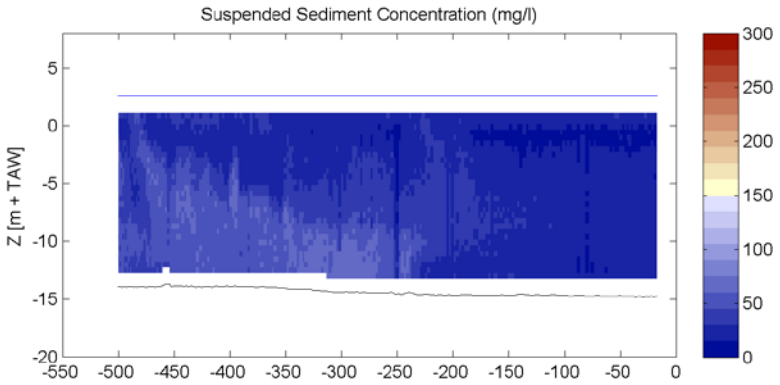
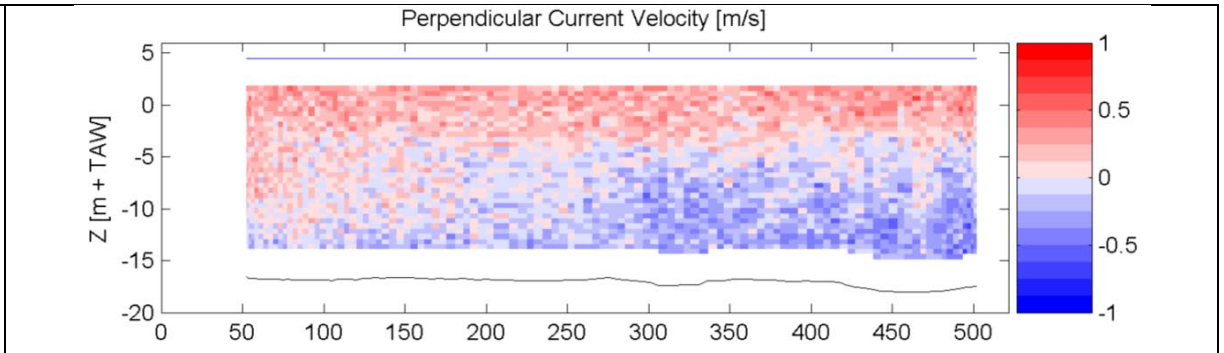
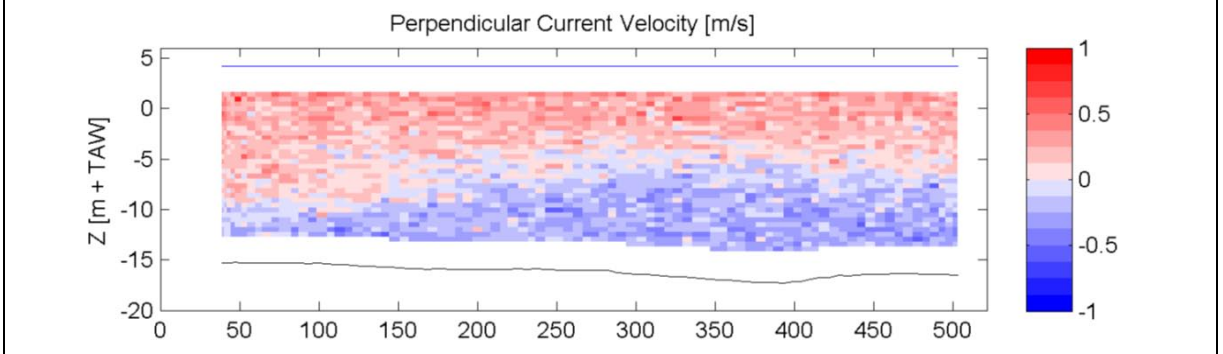
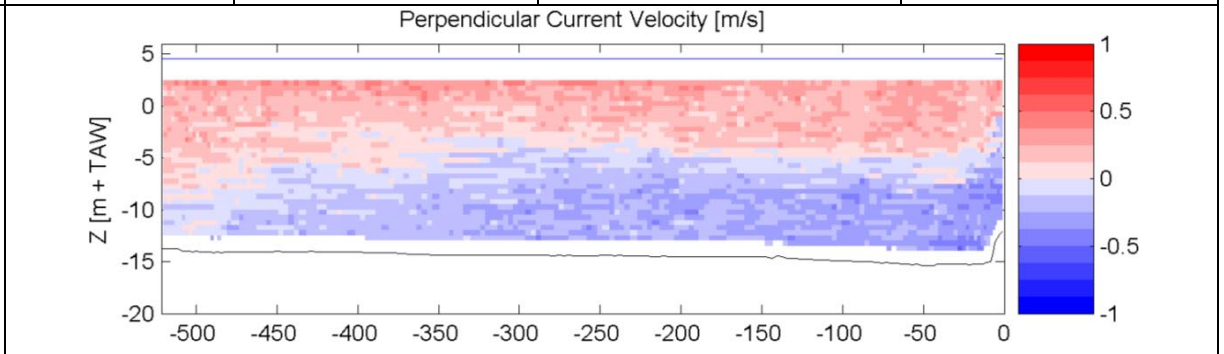
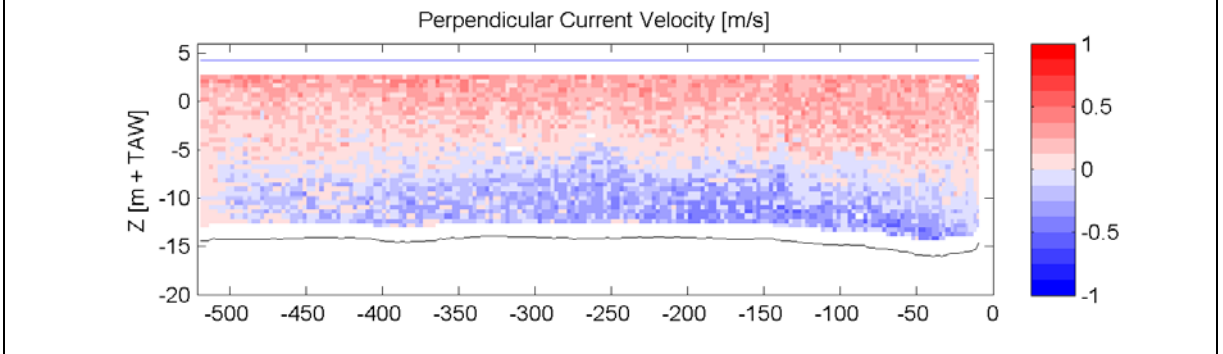
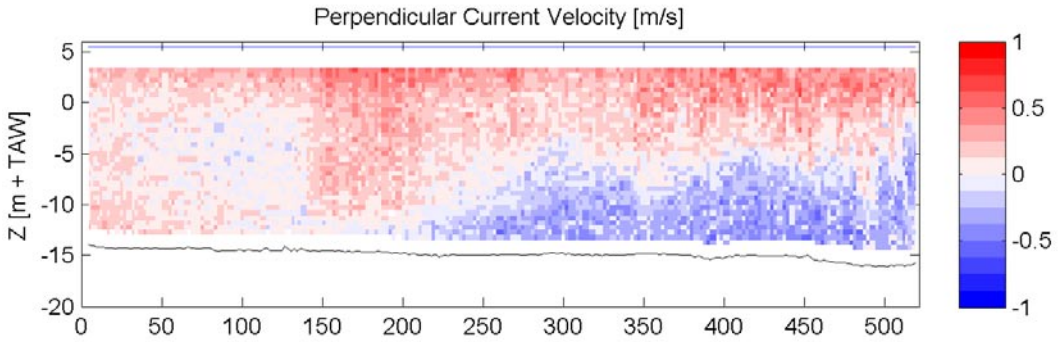
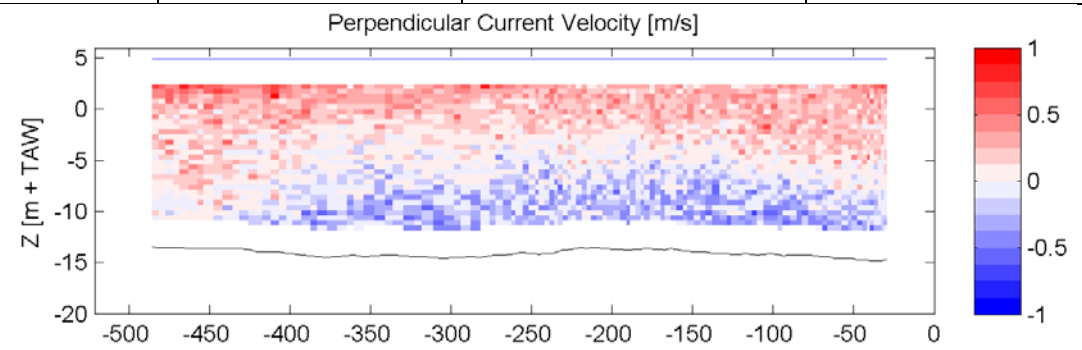
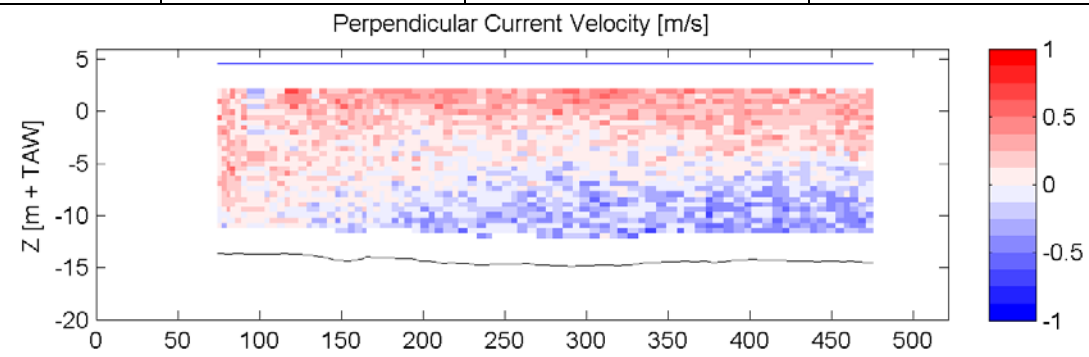
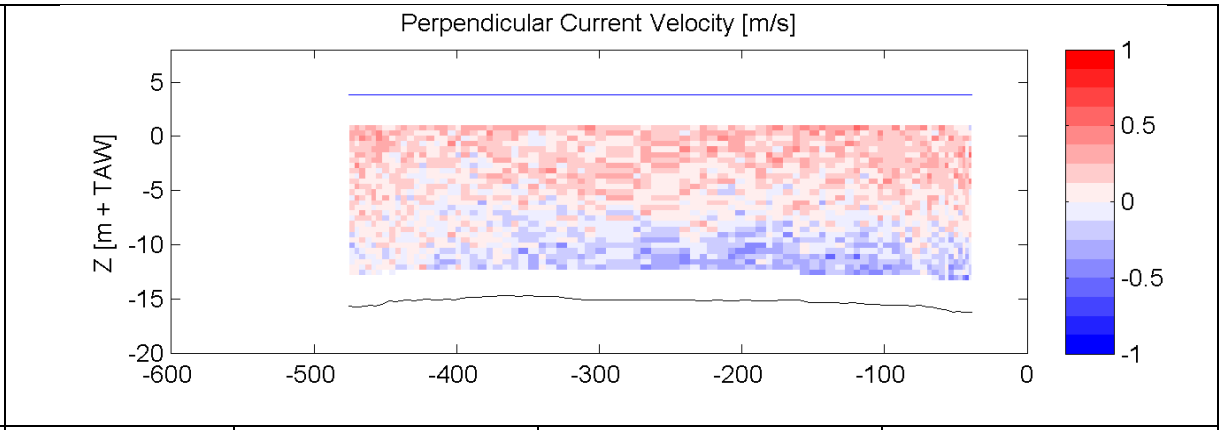
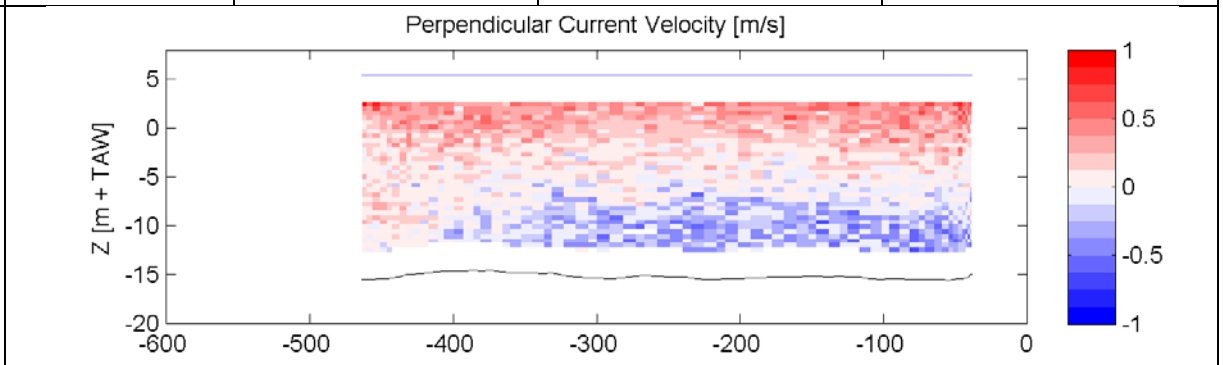
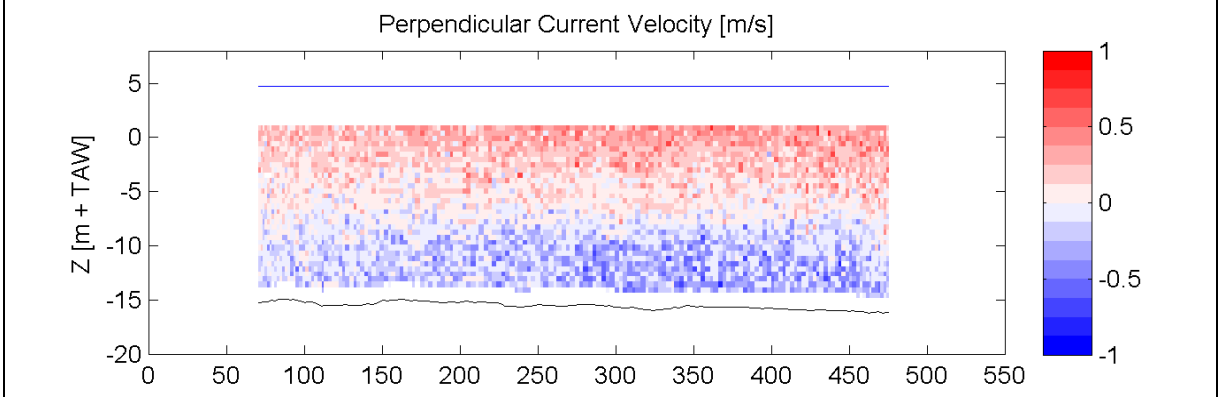
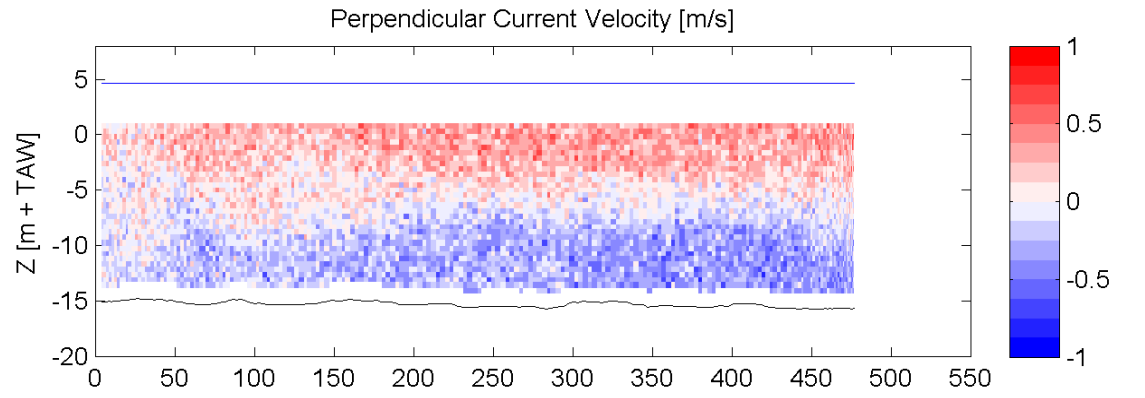
				
j)	02/12/2008	3 hrs after HW	Tidal coefficient: 0.98	Fresh water: 154 m³/s
				
k)	10/12/2008	3 hrs after HW	Tidal coefficient: 0.97	Fresh water: 222m³/s
				
l)	06/03/2009	3 hrs after HW	Tidal coefficient: 0.82	Fresh water: 99m³/s

Figure 5-6: a) Suspended sediment concentration on 17/11/2005, b) on 22/03/2006, c) on 27/09/2006, d) on 24/10/2007, e) on 11/03/2008, f) on 19/06/2008, g) on 26/06/2008, on 24/09/2008, i) 30/09/2008, j) 02/12/2008, k) on 10/12/2008 and l) on 06/03/2009 at 3h after high water

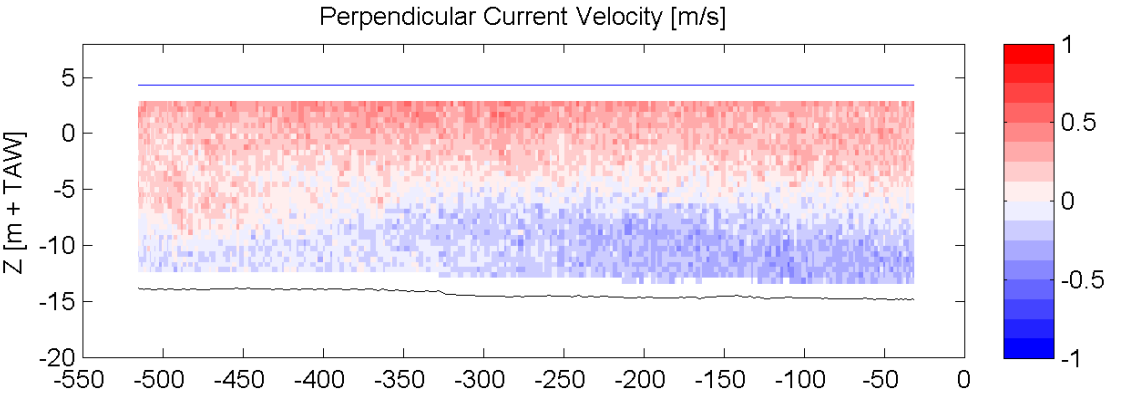
				
a)	17/11/2005	1 hr after HW	Tidal coefficient: 1.10	Fresh water: 91 m³/s
				
b)	22/03/2006	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 94 m³/s
				
c)	27/09/2006	1 hr after HW	Tidal coefficient: 1.03	Fresh water: 33 m³/s
				
d)	24/10/2007	1 hr after HW	Tidal coefficient: 1.02	Fresh water: 46 m³/s

				
e)	11/03/2008	1 hr after HW	Tidal coefficient: 1.17	Fresh water: 286 m³/s
				
f)	19/06/2008	1 hr after HW	Tidal coefficient: 1.15	Fresh water: 93 m³/s
				
g)	26/06/2008	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 69 m³/s

				
h)	24/09/2008	1 hr after HW	Tidal coefficient: 0.81	Fresh water: 75 m³/s
				
i)	30/09/2008	1 hr after HW	Tidal coefficient: 1.08	Fresh water: 82 m³/s
				
j)	02/12/2008	1 hr after HW	Tidal coefficient: 0.98	Fresh water: 154 m³/s

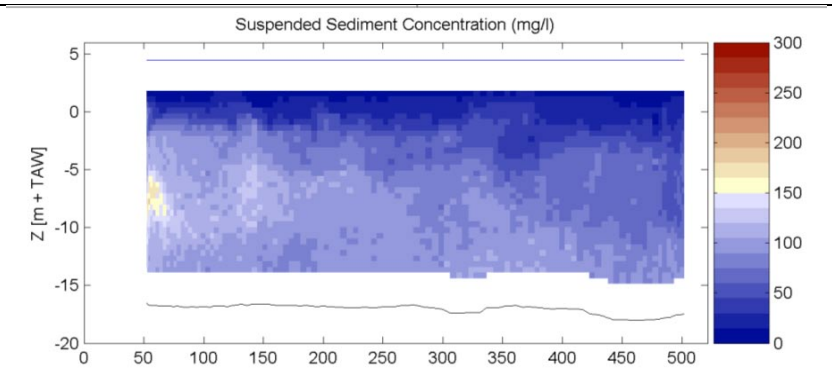
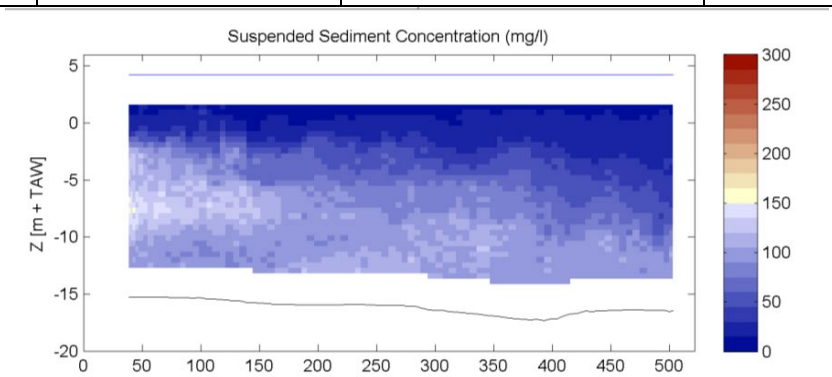
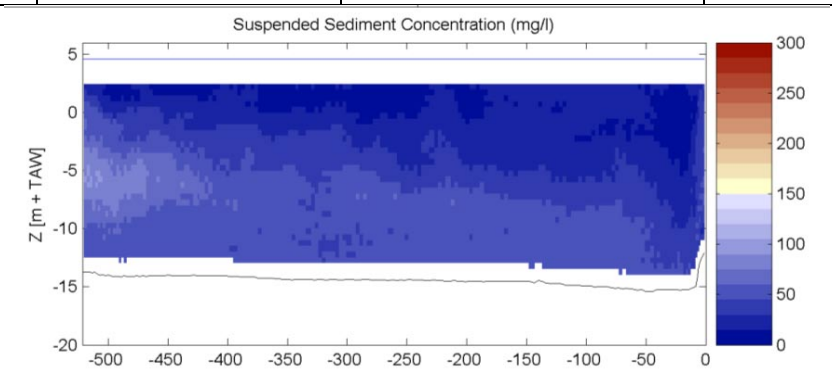


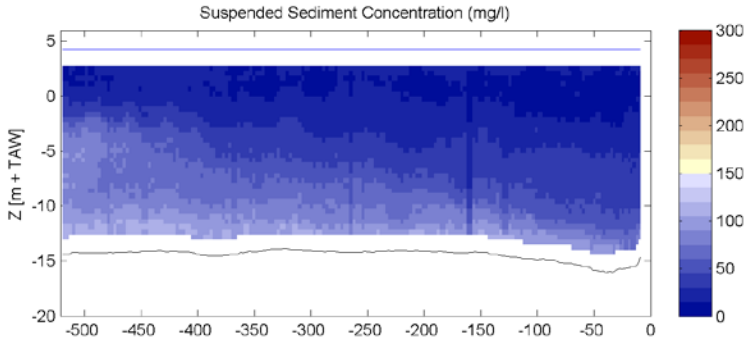
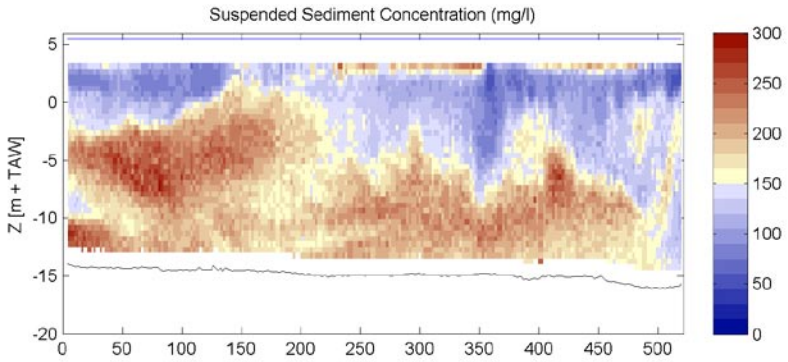
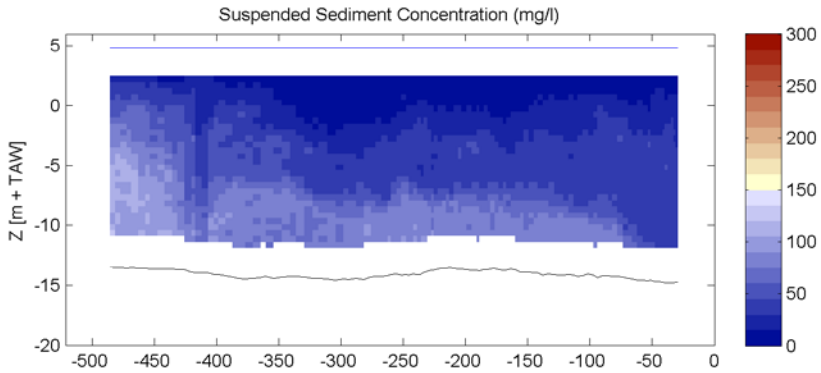
k)	10/12/2008	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 222 m³/s

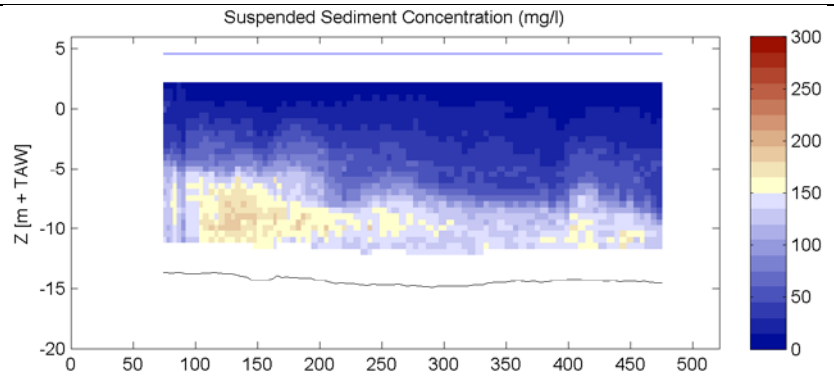
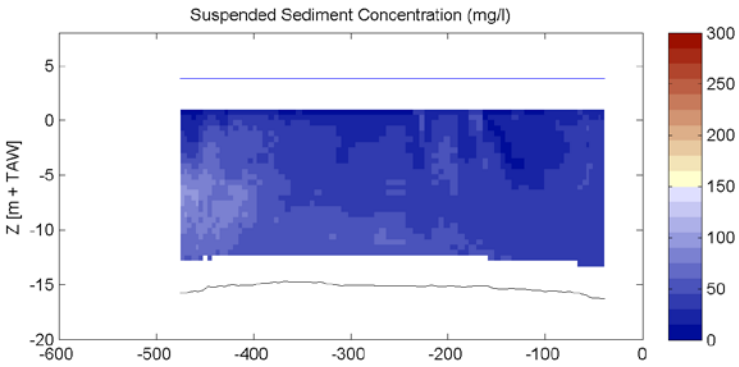
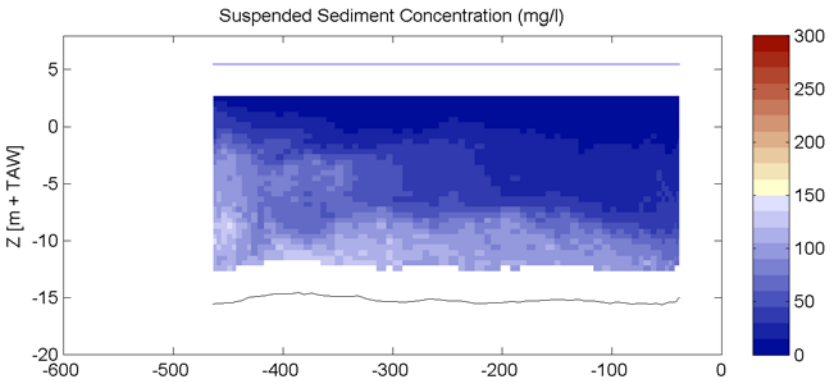


l)	06/03/2009	1 hr after HW	Tidal coefficient: 0.82	Fresh water: 99m³/s

Figure 5-7: a) Perpendicular current velocity on 17/11/2005, b) on 22/03/2006 , c) on 27/09/2006, d) on 24/10/2007, e) on 11/03/2008, f) on 19/06/2008, g) on 26/06/2008, h) on 24/09/2008, i) on 30/09/2008,j) on 02/12/2008 , k) on 10/12/2008 and l) on 06/03/2009 at 1h after high water

				
a)	17/11/2005	1 hr after HW	Tidal coefficient: 1.10	Fresh water: 91 m³/s
				
b)	22/03/2006	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 94 m³/s
				
c)	27/09/2006	1 hr after HW	Tidal coefficient: 1.03	Fresh water: 33 m³/s

				
d)	24/10/2007	1 hr after HW	Tidal coefficient: 1.02	Fresh water: 46 m³/s
				
e)	11/03/2008	1 hr after HW	Tidal coefficient: 1.17	Fresh water: 286 m³/s
				
f)	19/06/2008	1 hr after HW	Tidal coefficient: 1.15	Fresh water: 93 m³/s

				
g)	26/06/2008	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 69 m³/s
				
h)	24/09/2008	1 hr after HW	Tidal coefficient: 0.81	Fresh water: 75 m³/s
				
i)	30/09/2008	1 hr after HW	Tidal coefficient: 1.08	Fresh water: 82 m³/s

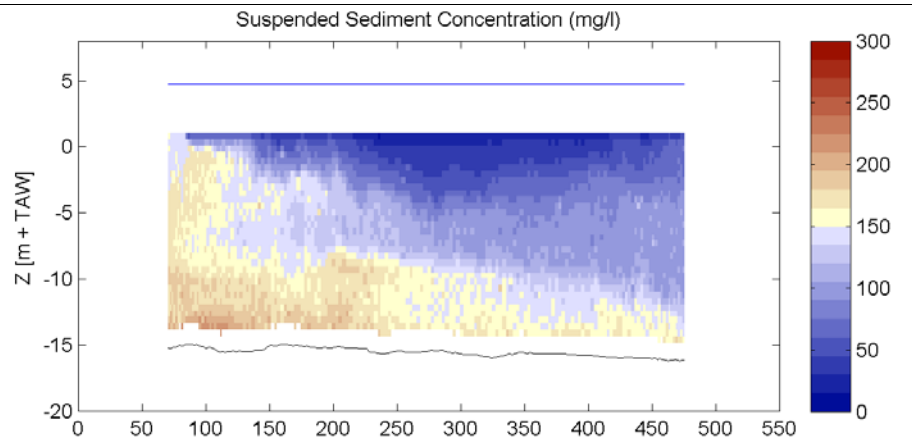
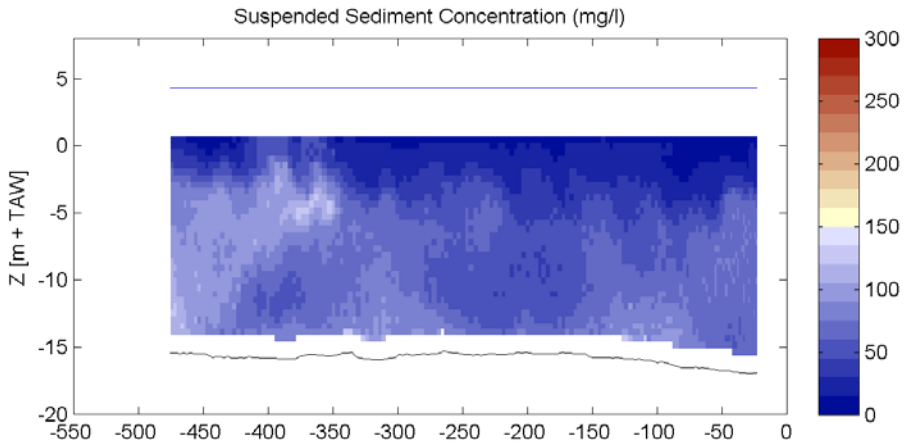
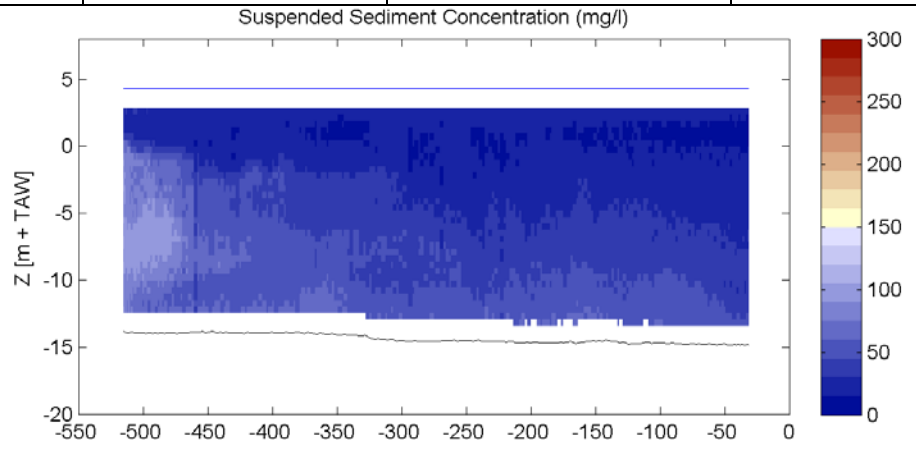
				
j)	02/12/2008	1 hr after HW	Tidal coefficient: 0.98	Fresh water: 154 m³/s
				
k)	10/12/2008	1 hr after HW	Tidal coefficient: 0.97	Fresh water: 222 m³/s
				
l)	06/03/2009	1 hr after HW	Tidal coefficient: 0.82	Fresh water: 99m³/s

Figure 5-8: a) Suspended sediment concentration on 17/11/2005, b) on 22/03/2006 , c) on 27/09/2006, d) on 24/10/2007, e) on 11/03/2008, f) on 19/06/2008, g) on 26/06/2008, on h) 24/09/2008, on i) 30/09/2008, on j) on 02/12/2008 , k) on 10/12/2008 and l) on 06/03/2009 at 1h after high water

5.2.3. Water balance

The volume of water, crossing the dock's entrance during the complete measurement day was calculated by integrating respectively total incoming and total outgoing discharge. The absolute values of both volumes were added up to know the total water exchange through the transect on the 6th of March 2009. Flood and ebb total water exchange were calculated with the same technique.

Next to the measured total water exchange, the theoretical exchanged water volume due to tidal filling was calculated by integrating tidal difference over time multiplied by the surface area of Deurganckdok.

Table 5-3 Total water exchange compared to tidal filling water exchange at transect DGD during ebb, flood and the complete measurement day

	Q Exchanged [m^3]	***source***
Measured Total Ebb	26 728 208	ADCP measurement
Tidal Emptying	4 339 262	Volume balance
Measured Total Flood	26 075 575	ADCP measurement
Tidal Filling	3 860 364	Volume balance
Measured Total	52 803 783	ADCP measurement
Tidal Filling/Emptying Total	8 199 626	Volume balance

During flood on the 6th of March 2009, 26 million m³ water crossed the entrance and during ebb even a bit more (see Figure 5-9). In total 52.8 million m³ water crossed the docks entrance, of which only 16% (8 million m³) can be contributed to tidal filling of Deurganckdok (see Figure 5-10). The other 84 % of water displacement at the entrance must be caused by density and eddy currents.

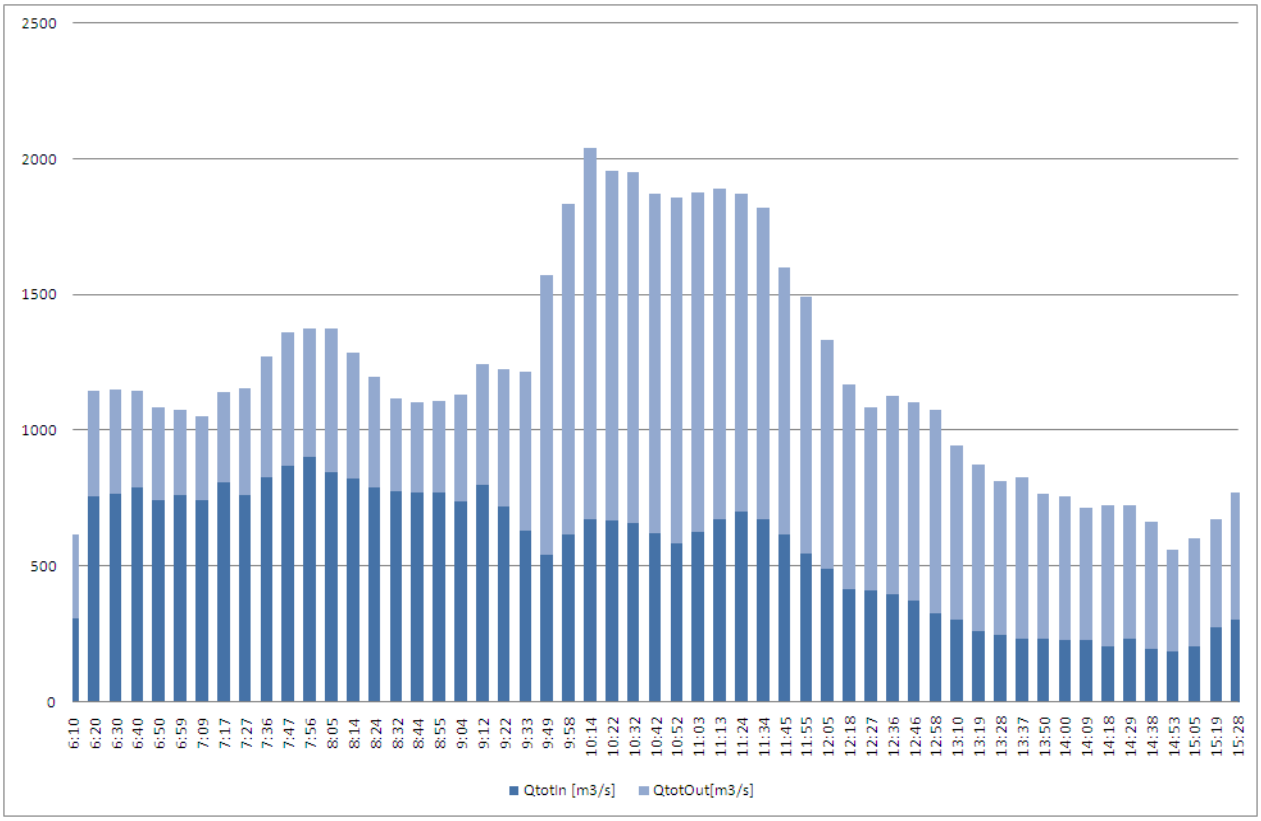


Figure 5-9 Total incoming and outgoing discharge at DGD on 06/03/2009

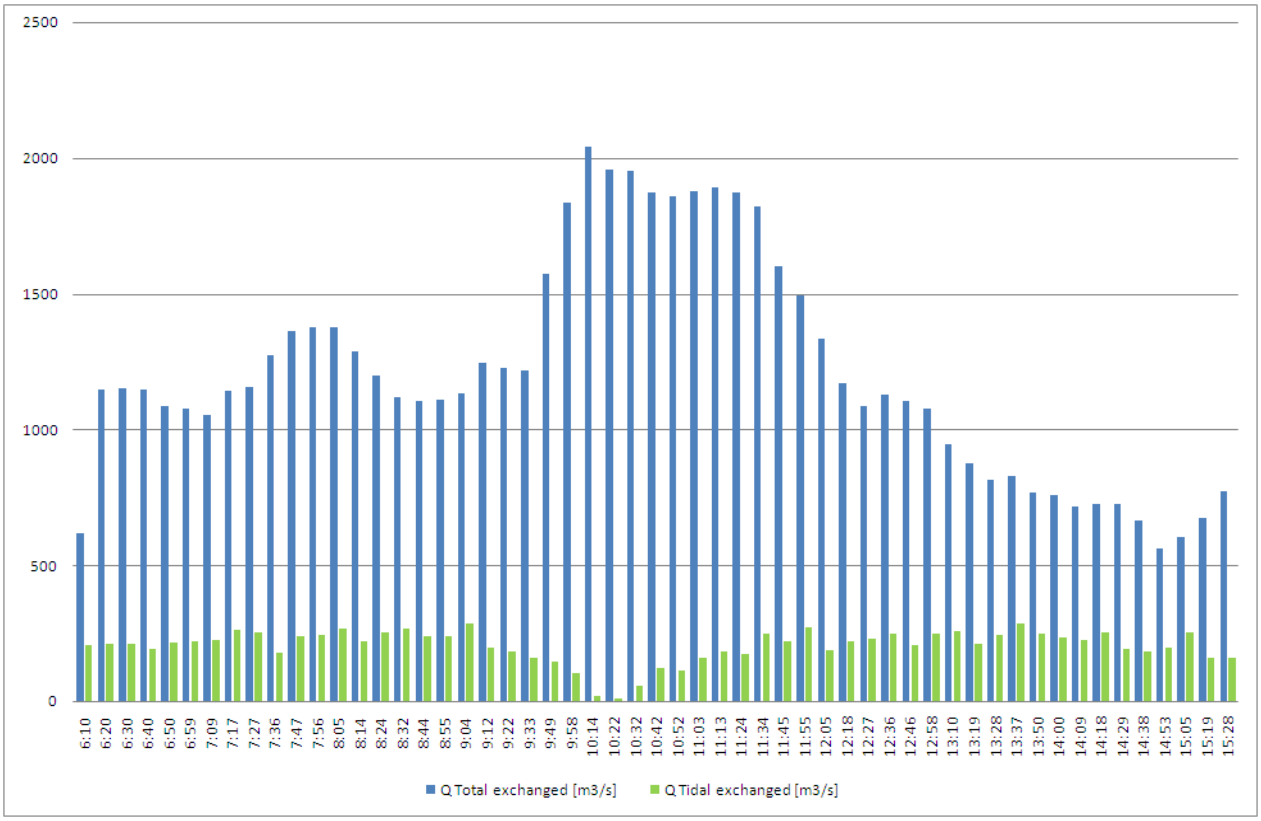


Figure 5-10 Total exchanged discharge versus exchanged discharge due to tidal filling at DGD on 06/03/2009

The measurements on the 6th of March 2009 show comparable results to the mathematical modelling results for Deurganckdok (IMDC, 1998). This 3-D model was used to analyse the different exchange mechanisms between the river and the dock. By comparing the total amount of water leaving or entering the dock with the tidal volume, it was possible to identify that horizontal water exchange, due to density currents and eddy formation, is the dominant factor. The analysis led to the following conclusions:

- During a spring tide ebb or flood the water exchange due to tidal filling is $7x10^6$ m^3, due to eddy effects about $6\text{-}12x10^6$ m^3 depending on the section and about $29x10^6$ m^3due to density effects. With density currents the total water exchange is thus about $42\text{-}48x10^6$ m^3. Without density effects the exchange would reduce to about $13\text{-}19x10^6$ m^3.
- Tidal filling and eddy effects are each responsible for ± 20% of the total water exchange.
- Density currents are responsible for ± 60-67% of the total water exchange.

The water balance doesn't match; as the measured filling of the dock is 2.0 million m³ over a period where tidal emptying (calculated by integrating tide) is 0.5 million m³ (see Table 5-4). The filling of the dock is thus overestimated by the measurements with 1.5 million cubic metres.

In comparison to the 10 million m³ of water exchanged by tidal filling/emptying, this overestimation of 1.5 million m³ seems rather high (see Figure 5-11), but compared to the 67 million cubes, the overestimation error is negligible (only 2.8% of the total exchanged volume ,see Figure 5-12).

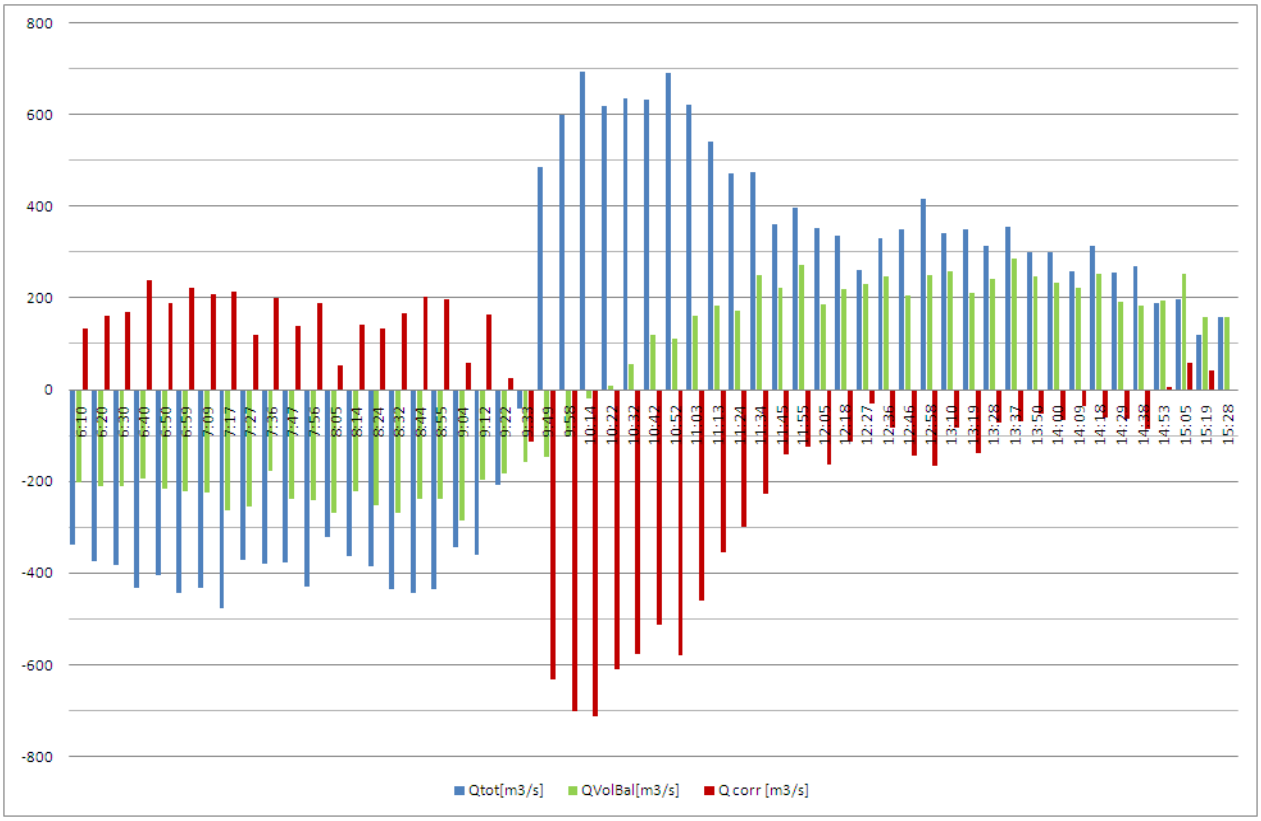


Figure 5-11 Measured residual discharge (Qtot) versus theoretical residual discharge (QVolBal) and correction offset (Qcorr) at DGD on 06/03/09 (negative values represent incoming water)

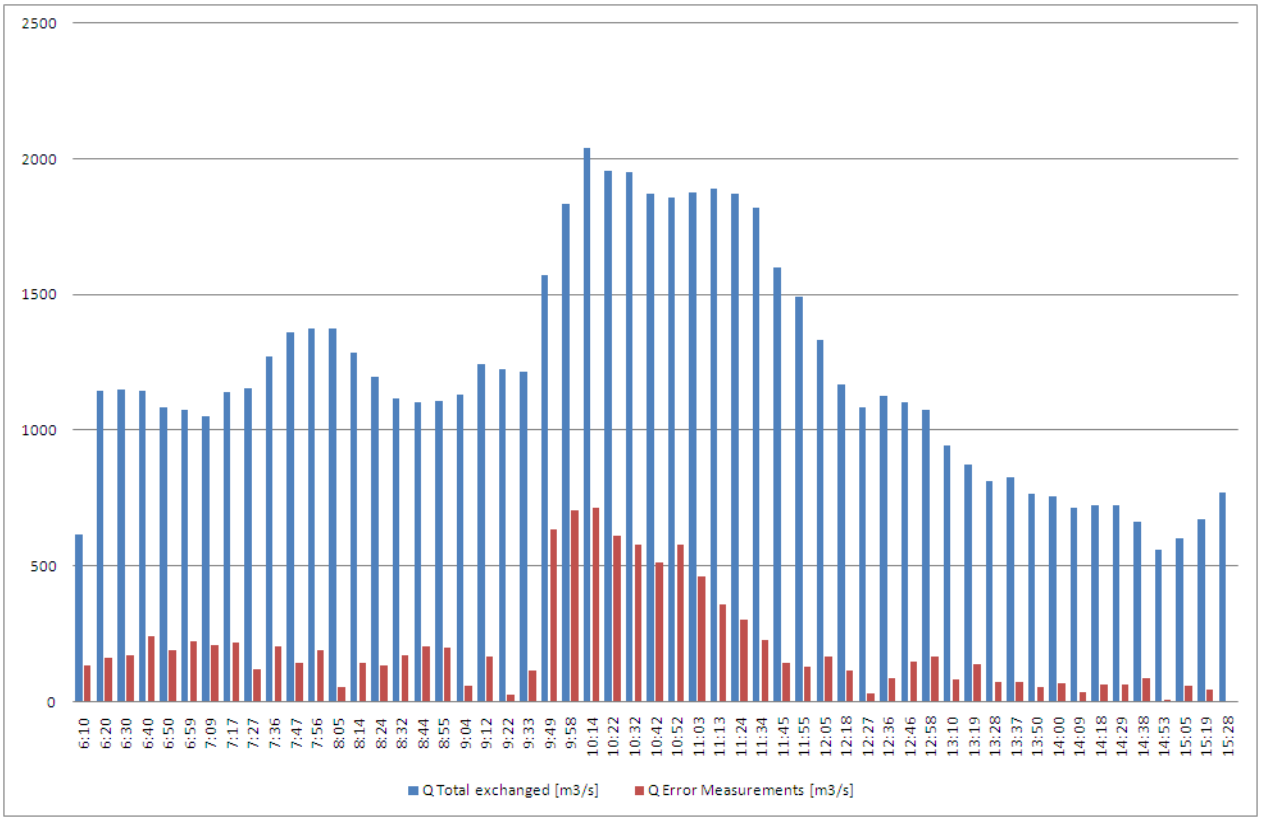


Figure 5-12 Absolute error in total water exchange versus total water exchange at DGD on 06/03/2009

Table 5-4 Total residual, incoming and outgoing water volumes in Deurganckdok during the measurement campaign of 06/03/09 compared to tidal filling/emptying volumes.

	Q Total Net [m^3]	***Q Total In [m^3]***	***Q Total Out [m^3]***
Measured Ebb*	6 847 375	-9 940 416	16 787 791
Tidal Emptying**	4 339 262	-	-
Measured Flood*	-4 876 740	-15 476 158	10 599 417
Tidal Filling**	-3 860 364	-	-
Measured Net*	1 970 635	-25 416 574	27 387 209
Tidal Emptying Net**	478 898	-	-

(: data from ADCP measurement, **: data derived from integration of tide)*

One of the reasons of the overestimation can be found in the estimations of the unmeasured regions (the bottom, top and edge estimations). An ADCP cannot measure a complete cross section. Near the banks, near the bottom and near the water surface, no measurements can be executed and the discharges in these unmeasured areas needs to be estimated (see 4.2.4.1).

The errors caused by estimations can be minimised if a good vessel setup and appropriate ADCP and measurement protocol is chosen.

Compared to former campaigns, the effect of the top, bottom and edge estimates seems to be larger. This can be partly explained as a result of the boat setup and the used ADCP.

The uncertainty on the top estimated values should be decreased since the transducer depth of the ADCP was highered from 2.6 meter (setup on the Parel II in December 2008) to 0.5 meter (setup ADCP on the Parel II in March 2009).

The uncertainty on the bottom estimated values for the measurements of 17/11/2005, 22/03/2006, 19/06/2008, 26/06/2008, 24/09/200 and 30/09/2008 was twice as big because of the beam angle of the used ADCP. In these measurements, the beam angle of the ADCP was 30°, therefore, the area near the bottom that is not be measured is 12% (see 4.2.4.1). During the other measurements, including this measurement, the ADCP had a beam angle of 20°, which implements a much smaller unmeasured area of 6%.

Compared to the first measurement campaigns the effect of estimations caused by interpolating between 2 successive transects is now minimized because the latest measurements were executed at a higher frequency, 5 to 6 measurements per hour, than the first measurements (2 measurements per hour).

As a conclusion, it appears that the water balance fit quite well (see Figure 5-11). The main cause for the unbalanced balance is the uncertainty/accuracy of the estimations and the fact that the total exchanged volume of water at the entrance of DGD is approximately five times bigger than the known resulting volume entering and leaving the dock, i.e. the tidal volume (see Figure 5-10).

In the future, it is important on one hand to minimize these estimates as much as possible by starting and ending the transects close to the quay walls, by minimising the transducer depth and by using an ADCP with a beam angle of 20° instead of 30°. On the second hand, it is important to maintain the high frequency of sailed transects.

5.2.4. Sediment balance

The mass of the suspended sediment, crossing dock's entrance during flood or ebb on a measurement day, was calculated on a similar manner as the volume.

From Figure 5-14 it can be concluded that the residual sediment flux is less than a fifth of the total sediment exchange at the entrance of Deurganckdok and from Figure 5-13 it can be seen that incoming and outgoing flux are always in the same order of magnitude. If these two conclusions are considered together one can see that the water balance has to fit before the sediment balance can be acceptable. An overestimation of outgoing discharge will always lead to an underestimation of the incoming sediment mass.

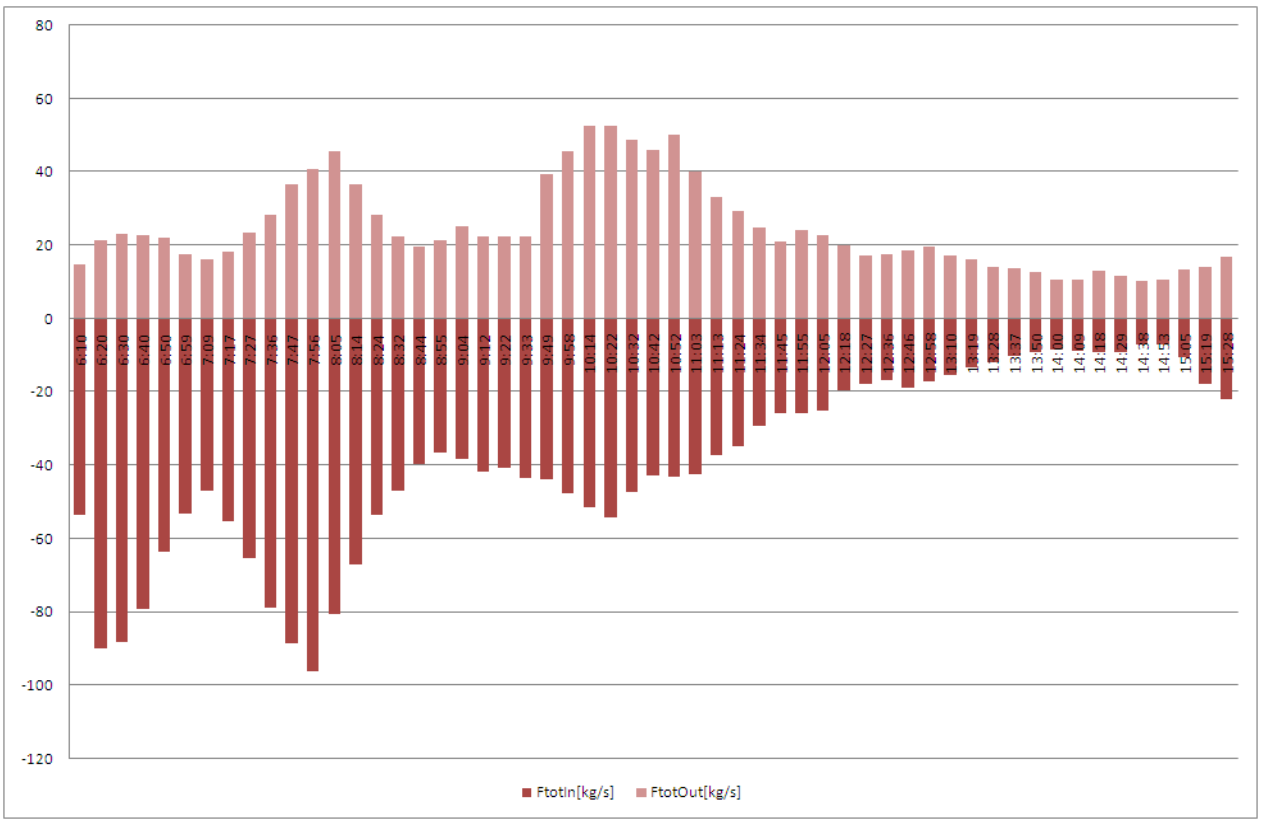


Figure 5-13 Total incoming and outgoing sediment flux at DGD on 06/03/2009 (negative values represent incoming sediment)

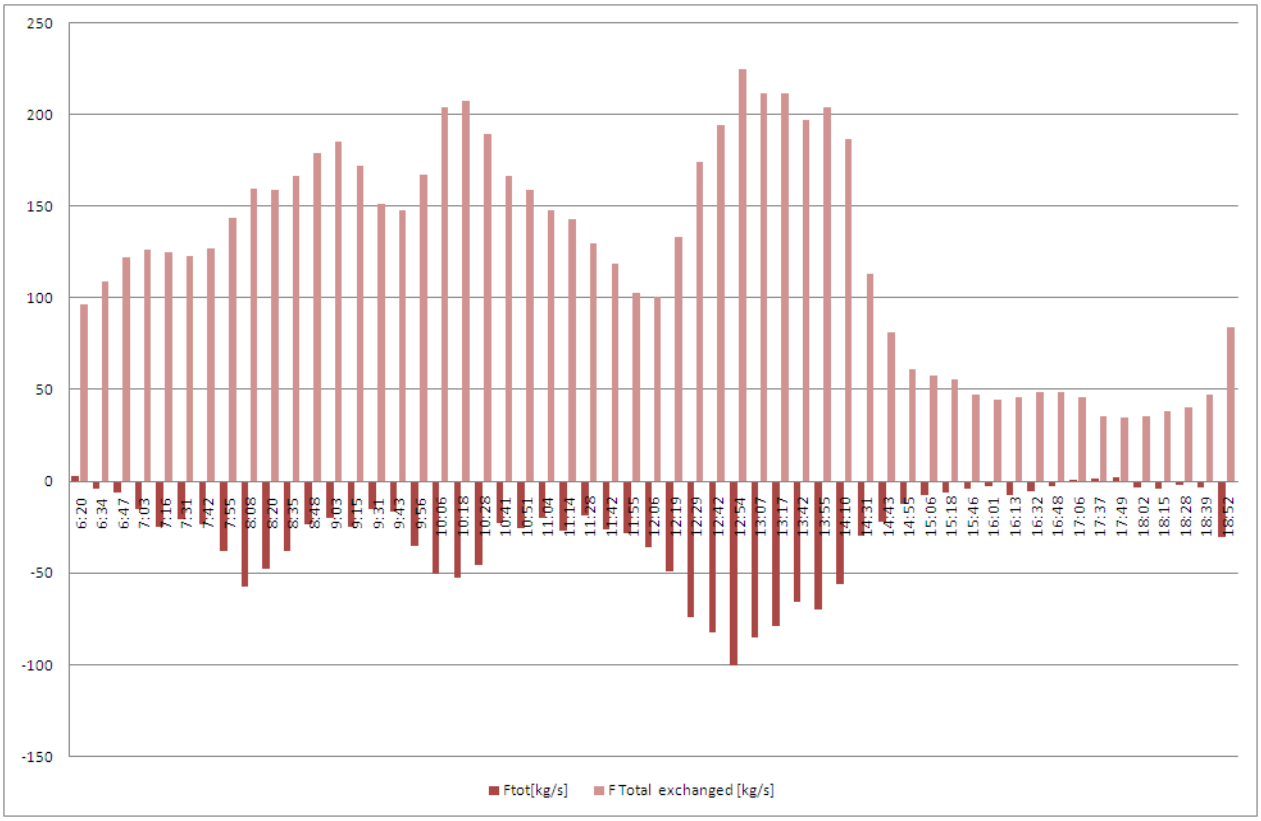


Figure 5-14 Total sediment flux versus total sediment exchange at DGD on 06/03/2009 (negative values represent incoming sediment)

As the error in water discharge is known (difference between total residual discharge and discharge due to tidal filling of the dock), one can try to correct discharges in order to calculate a more realistic sediment deposition in DGD over a tidal cycle. For the correction of the total discharge the following methods were used; in the first case the total incoming measured discharge was retained and the total outgoing discharge was reduced with 1.3 million m^3, in the second case the total outgoing discharge was retained and the total incoming discharge was raised with 1.3 million m^3. In both cases the total settled sediment mass increased. The settled sediment mass, calculated with corrected discharges, was estimated between 948 and 975 tonnes over the measurement cycle. During ebb approximately 1300 tonnes of sediment passed the entrance of which 284 to 321 tonnes stayed into the dock; during flood approximately 1250 tonnes passed the entrance of which 655 to 665 tonnes stayed into the dock.

Figure 5-15 shows the relation between the amount of suspended sediments passing in the river Scheldt and the amount of sedimentation in the dock. Sediment data is obtained from the long term measurements at buoy 97 and buoy 84 (IMDC 2005l, 2006l, 2006p, 2007b, 2008p, 2008aa, 2009m).

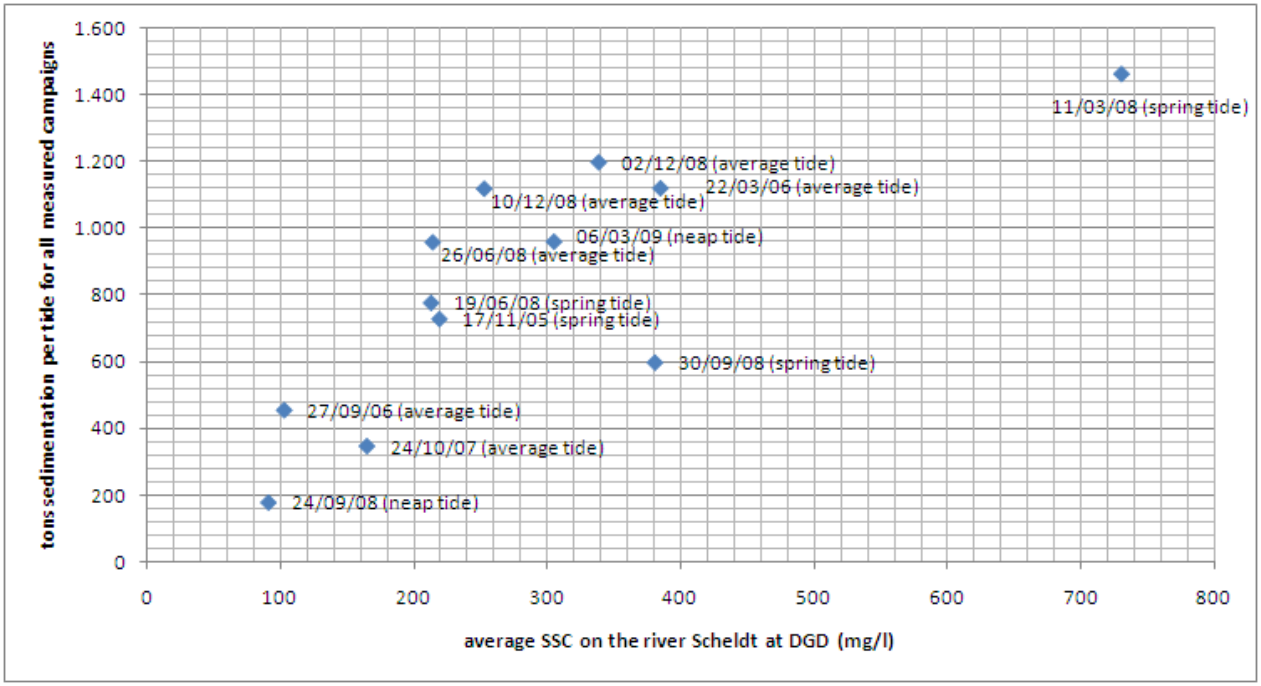


Figure 5-15 Overview of measured sediment deposition in Deurganckdock per tide by means of Sediview technique

In comparison to 3D simulations that were made to analyse the mud deposition in the dock (IMDC, 1998), model results from the empirical model described in report 4.10 (IMDC, 2008s) and former measurement campaigns at transect DGD, this resulting deposition during average tide is rather high. The model results from the empirical model described in report 4.10 (IMDC, 2008s) show net siltation rates from 400 to 2000 tonnes per tide, with a yearly average of 1000 tonnes per tide. The model results of the 3D model (IMDC, 1998) simulated siltation rates of ±1200 tonnes during a neap tide and ±1700 tonnes during a spring tide.

Table 5-5: Water volumes during ebb, flood and measurement campaign on 17/11/2005 (Spring tide), 22/03/2006 (Average tide), 27/09/2006 (Average tide), 24/10/2007 (Average tide), 11/03/2008 (Spring tide) and 19/06/2008 (Spring tide), including theoretical expected volumes. The durations are based on ADCP measurement. Tidal data of gauge Liefkenshoek was used.

Measurement Day		***17/11/2005***	***22/03/2006***	***27/09/2006***	***24/10/2007***	***11/03/2008***	***19/06/2008***
DGD surface area [10^3 m^2]		750	750	750	1 019	1019	1 019
Tidal coefficient		1.1	0.97	1.03	1.02	1.17	1.15
Duration of measurement [hh:mm]		10:57	12:52	12:42	12:24	12:23	12:32
Daily fresh water discharge at Schelle [m^3/s]		91	94	33	46	286	93
Ebb	exchanged volume	34 136 616	33 830 522	33 338 727	23 297 626	30 605 480	29 862 615
	incoming volume	18 436 105	14 715 880	14 974 087	8 579 394	10 263 013	10 501 491
	outgoing volume	15 700 511	19 114 642	18 364 640	14 718 232	20 342 466	19 361 124
	residual outgoing volume	-2 735 594	4 398 762	3 390 553	6 138 838	10 061 934	8 859 633
	residual tidal emptying = theoretical residual outgoing volume	2 485 404	3 758 065	4 226 908	5 479 043	5 957 334	5 456 121
	overestimed outgoing volume	-5 220 998	640 696	-836 355	659 795	4 104 600	3 403 512
Flood	exchanged volume	24 304 195	28 058 426	24 938 855	19 611 830	22 983 058	26 368 812
	incoming volume	12 564 681	14 965 302	14 236 036	10 590 072	14 477 186	14 602 453
	outgoing volume	11 739 513	13 093 124	10 702 819	9 021 758	8 505 873	11 766 360
	residual incoming volume	825 168	1 872 179	3 533 217	1 568 313	5 965 867	2 836 093
	residual tidal filling = theoretical residual incoming volume	3 370 067	3 261 295	3 913 928	5 133 774	5 941 019	5 390 972
	underestimated incoming volume	2 544 898	1 389 116	380 711	3 565 461	-24 848	2 554 879
Total	exchanged volume	58 440 811	61 888 948	58 277 582	42 909 456	53 588 538	56 231 427
	incoming volume	31 000 787	29 681 183	29 210 123	19 169 465	24 740 199	25 103 943
	outgoing volume	27 440 024	32 207 765	29 067 459	23 739 990	28 848 339	31 127 483
	residual outgoing volume	-3 560 763	2 526 583	-142 664	4 570 525	4 096 067	6 023 540
	residual tidal emptying = theoretical residual outgoing volume	-884 663	496 771	312 980	345 269	16 315	65 148
	overestimed outgoing volume	-2 676 100	2 029 812	-455 644	4 225 255	4 079 752	5 958 392

Table 5-6: Water volumes during ebb, flood and measurement campaign on 26/06/2008 Average tide, 24/09/2008 (neap tide), 30/09/2008 (Spring tide), 2/12/2008 (average tide),10/12/2008 (average tide) and 06/03/2009 (neap tide) including theoretical expected volumes. The durations are based on ADCP measurement. Tidal data of gauge Liefkenshoek was used.

Measurement Day		***26/06/2008***	***24/09/2008***	***29/09/2008***	***02/12/2008***	***10/12/2008***	***06/03/2009***
DGD surface area [10^3 m^2]		1 019	1 019	1 019	1 019	1,019	1 019
Tidal coefficient		0.97	0.81	1.08	0.98	0.97	0.82
Duration of measurement [hh:mm]		12:20	12:38	12:49	12:19	12:38	12:47
Daily fresh water discharge at Schelle [m^3/s]		69	75	82	154	222	99
Ebb	exchanged volume	25 668 407	25 792 421	32 789 767	36 715 558	33 823 289	26 728 208
	incoming volume	8 246 217	9 556 269	10 949 298	14 953 928	14 465 653	9 940 416
	outgoing volume	17 422 189	16 236 153	21 840 470	21 761 630	19 357 636	16 787 791
	residual outgoing volume	9 175 972	6 679 884	10 891 172	6 807 701	4 891 983	6 847 375
	residual tidal emptying = theoretical residual outgoing volume	4 805 274	4 099 889	6 208 764	5 225 432	5 166 327	4 339 262
	overestimated outgoing volume	4 370 698	2 579 995	4 682 408	1 582 269	-274 344	2 508 114
Flood	exchanged volume	24 109 880	26 619 095	25 215 597	33 852 955	33 660 183	26 075 575
	incoming volume	11 817 853	14 615 500	14 186 274	20 099 000	19 741 042	15 476 158
	outgoing volume	12 292 027	12 003 595	11 029 323	13 753 955	13 919 141	10 599 417
	residual incoming volume	474 174	2 611 905	3 156 951	6 345 046	5 821 901	4 876 740
	residual tidal filling = theoretical residual incoming volume	5 211 112	3 620 075	5 767 856	5 090 483	4 950 425	3 860 364
	underestimated incoming volume	4 736 938	1 008 169	2 610 905	-1 254 562	-871 476	-1 016 376
Total	exchanged volume	49 778 287	52 411 517	58 005 364	70 568 513	67 483 472	52 803 783
	incoming volume	20 064 071	24 171 769	25 135 572	35 515 584	33 276 777	25 416 574
	outgoing volume	29 714 217	28 239 748	32 869 792	35 052 929	34 206 695	27 387 209
	residual outgoing volume	9 650 146	4 067 979	7 734 220	462 656	929 918	1 970 635
	residual tidal emptying = theoretical residual outgoing volume	-405 838	479 814	440 908	134 948	215 902	478 898
	overestimated outgoing volume	10 055 984	3 588 164	7 293 313	327 707	714 016	1 491 737

Table 5-7 Range of sediment deposition during ebb, flood and measurement campaign on 17/11/2005 (Spring tide), 22/03/2006 (Average tide), 27/09/2006 (Average tide) and 24/10/2007 (Average tide), calculated with forced fitting water balances for those days. The duration is based on ADCP measurements.

Measurement Day		***17/11/2005***		***22/03/2006***		***27/09/2006***		***24/10/2007***	
DGD surface area [10^3 m^2]		750		750		750		1 019	
Tidal coefficient		1.1		0.97		1.03		1.02	
Duration of measurement [hh:mm]		10:57		12:52		12:42		12:24	
Daily fresh water discharge at Schelle [m^3/s]		91		94		33		46	
Ebb	exchanged mass [kg]	1 703 926	2 367 275	1 780 460	1 867 483	1 056 448	1 090 019	619 806	584 893
	incoming mass [kg]	1 087 233	1 488 674	1 160 142	1 217 874	635 375	656 454	335 783	316 828
	outgoing mass [kg]	616 692	878 601	620 317	649 609	421 074	433 565	284 023	268 065
	residual incoming mass [kg]	470 541	610 073	539 825	568 265	214 301	222 890	51 760	48 763
Flood	exchanged mass [kg]	1 804 593	1 498 429	2 092 190	2 328 688	683 915	663 551	1 015 320	714 273
	incoming mass [kg]	999 502	841 383	1 319 543	1 459 070	462 843	448 383	661 872	500 923
	outgoing mass [kg]	805 091	657 046	772 648	869 618	221 073	215 168	353 448	213 350
	residual incoming mass [kg]	194 411	184 337	546 895	589 452	241 770	233 215	308 424	287 573
Total	exchanged mass [kg]	3 508 519	3 865 704	3 872 650	4 196 170	1 740 364	1 753 570	1 635 126	1 299 166
	incoming mass [kg]	2 086 735	2 330 057	2 479 685	2 676 943	1 098 217	1 104 837	997 655	817 751
	outgoing mass [kg]	1 421 783	1 535 647	1 392 965	1 519 227	642 146	648 733	637 470	481 415
	residual incoming mass [kg]	664 952	794 410	1 086 720	1 157 717	456 071	456 105	360 185	336 337

Table 5-8 Range of sediment deposition during ebb, flood and measurement campaign on 11/03/2008 (Spring tide), 19/06/2008 (Spring tide), 26/06/2008 (Average tide) and 24/09/2008 (neap tide) calculated with forced fitting water balances for those days. The duration is based on ADCP measurements.

Measurement Day		***11/03/2008***		***19/06/2008***		***26/06/2008***		***24/09/2008***	
DGD surface area [10^3 m^2]		1 019		1 019		1 019		1 019	
Tidal coefficient		1.17		1.15		0.97		0.81	
Duration of measurement [hh:mm]		12:23		12:32		12:20		12:38	
Daily fresh water discharge at Schelle [m^3/s]		286		93		69		75	
Ebb	exchanged mass [kg]	2 589 128	3 641 521	1 087 599	1 375 505	1 040 509	1 471 199	701 869	674 344
	incoming mass [kg]	1 387 950	1 989 942	668 861	865 152	694 822	1 008 047	402 477	316 469
	outgoing mass [kg]	1 201 178	1 651 579	418 737	510 353	345 687	463 151	299 392	357 875
	residual incoming mass [kg]	186 772	338 362	250 124	354 799	349 135	544 896	17 077	44 602
Flood	exchanged mass [kg]	2 928 327	2 956 105	1 710 175	2 039 419	1 173 483	1 884 440	993 459	991 306
	incoming mass [kg]	2 058 036	2 086 840	1 087 813	1 262 679	815 210	1 226 949	590 065	550 302
	outgoing mass [kg]	870 291	869 265	622 362	776 740	358 272	657 490	403 394	441 004
	residual incoming mass [kg]	1 187 745	1 217 575	465 450	485 939	456 938	569 459	146 908	149 061
Total	exchanged mass [kg]	5 517 455	6 597 625	2 797 774	3 414 924	2 213 992	3 355 639	1 695 328	1 665 650
	incoming mass [kg]	3 445 986	4 076 781	1 756 674	2 127 831	1 510 032	2 234 997	992 542	866 771
	outgoing mass [kg]	2 071 469	2 520 844	1 041 100	1 287 093	703 960	1 120 642	702 786	798 879
	residual incoming mass [kg]	1 374 517	1 555 937	715 574	840 738	806 073	1 114 355	163 986	193 663

Table 5-9 Range of sediment deposition during ebb, flood and measurement campaign on 30/09/2008 (Spring tide), 2/12/2008 (Average tide) and 06/03/2009 (Neap tide), calculated with forced fitting water balances for those days. The duration is based on ADCP measurements.

Measurement Day		***30/09/2008***		***02/12/2008***		***10/12/2008***		***6/03/2009***	
DGD surface area [10^3 m^2]		1 019		1 019		1 019		1 019	
Tidal coefficient		1.08		0.98		0.97		0.82	
Duration of measurement [hh:mm]		12:49		12:19		12:38		12:47	
Daily fresh water discharge at Schelle [m^3/s]		82		154		222		99	
Ebb	exchanged mass [kg]	915 211	1 205 171	3 118 503	2 890 820	1 927 002	2 003 483	1 372 839	1 205 314
	incoming mass [kg]	558 775	768 792	1 853 641	1 723 816	1 143 975	1 194 154	846 780	744 568
	outgoing mass [kg]	356 437	436 379	1 264 862	1 167 004	783 026	809 330	526 059	460 746
	residual incoming mass [kg]	202 338	332 413	588 780	519 110	360 949	384 824	320 720	283 821
Flood	exchanged mass [kg]	1 135 260	1 341 907	4 151 712	4 500 008	3 402 375	3 573 339	1 736 134	1 926 814
	incoming mass [kg]	726 957	843 357	2 398 108	2 573 951	2 072 622	2 163 174	1 195 399	1 295 662
	outgoing mass [kg]	408 303	498 550	1 753 604	1 926 057	1 329 753	1 410 165	540 735	631 152
	residual incoming mass [kg]	318 655	344 807	644 504	647 894	742 868	753 009	654 664	664 509
Total	exchanged mass [kg]	2 050 471	2 547 078	7 270 216	7 428 530	5 329 377	5 576 822	3 108 973	3 132 128
	incoming mass [kg]	1 285 732	1 612 149	4 251 750	4 297 767	3 216 597	3 357 328	2 042 178	2 040 229
	outgoing mass [kg]	764 739	934 929	3 018 466	3 130 763	2 112 780	2 219 495	1 066 795	1 091 899
	residual incoming mass [kg]	520 993	677 220	1 233 284	1 167 004	1 103 817	1 137 833	975 384	948 330

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IMDC (2007l) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.4 Sediment Balance: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.116/MSA)

IMDC (2007m) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.5 Annual Sediment Balance (I/RA/11283/06.117/MSA)

IMDC (2007n) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.2 Through tide measurement SiltProfiler 26/09/2006 Stream (I/RA/11283/06.068/MSA)

IMDC (2007o) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.4 Through tide measurement Sediview spring tide 27/09/2006 Parel 2 (I/RA/11283/06.119/MSA)

IMDC (2007p) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.7 Salt-Silt distribution & Frame Measurements Deurganckdok 15/07/2006 – 31/10/2006 (I/RA/11283/06.122/MSA)

IMDC (2007q) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.8 Salt-Silt distribution & Frame Measurements Deurganckdok 15/01/2007 – 15/03/2007 (I/RA/11283/06.123/MSA)

IMDC (2007r) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.1 Boundary conditions: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.127/MSA)

IMDC (2007s) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.10: Sediment Balance: Three monthly report 1/4/2007 – 30/06/2007 (I/RA/11283/07.081/MSA)

IMDC (2007t) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.11: Sediment Balance: Three monthly report 1/7/2007 – 30/09/2007 (I/RA/11283/07.082/MSA)

IMDC (2007v) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.16: Salt-Silt distribution Deurganckdok summer (21/6/2007 – 30/07/2007) (I/RA/11283/07.092/MSA)

IMDC (2007w) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.10: Boundary conditions: Three monthly report 1/04/2007 – 30/06/2007 (I/RA/11283/07.097/MSA)

IMDC (2007u) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.11: Boundary conditions: Two monthly report 1/07/2007 – 30/09/2007 (I/RA/11283/07.098/MSA)

IMDC (2008a) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.5: Through tide measurement Sediview average tide 24/10/2007 (I/RA/11283/06.120/MSA)

IMDC (2008b) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 4.1: Analysis of siltation Processes and Factors (I/RA/11283/06.129/MSA)

IMDC (2008c) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.12: Sediment Balance: Four monthly report 1/9/2007 – 31/12/2007 (I/RA/11283/07.083/MSA)

IMDC (2008d) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.13: Sediment Balance: Four monthly report 1/01/2007 – 31/03/2007 (I/RA/11283/07.084/MSA)

IMDC (2008e) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.14: Annual Sediment Balance. (I/RA/11283/07.085/MSA)

IMDC (2008f) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.09: Calibration stationary equipment autumn (I/RA/11283/07.095/MSA)

IMDC (2008g) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.10: Through tide measurement SiltProfiler 23 October 2007 (I/RA/11283/07.086/MSA)

IMDC (2008h) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.11: Through tide measurement Salinity Profiling winter 12 March 2008 (I/RA/11283/07.087/MSA)

IMDC (2008i) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.12: Through tide measurement Sediview winter 11 March 2008 – Transect I (I/RA/11283/07.088/MSA)

IMDC (2008j) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.13: Through tide measurement Sediview winter 11 March 2008 – Transect K (I/RA/11283/07.089/MSA)

IMDC (2008k) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.14: Through tide measurement Sediview winter 11 March 2008 – Transect DGD (I/RA/11283/07.090/MSA)

IMDC (2008l) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.15: Through tide measurement SiltProfiler winter 12 March 2008 (I/RA/11283/07.091/MSA)

IMDC (2008m) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.17: Salt-Silt distribution & Frame Measurements Deurganckdok autumn (17/9/2007-10/12/2007) (I/RA/11283/07.093/MSA)

IMDC (2008n) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.18: Salt-Silt distribution & Frame Measurements Deurganckdok winter (18/02/2007-31/03/2008) (I/RA/11283/07.094/MSA)

IMDC (2008o) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.19: Calibration stationary & mobile equipment winter (I/RA/11283/07.096/MSA)

IMDC (2008p) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.12: Boundary conditions: Three monthly report 1/9/2007 – 31/12/2007 (I/RA/11283/07.099/MSA)

IMDC (2008q) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.13: Boundary conditions: Three monthly report 1/1/2008 – 31/3/2007 (I/RA/11283/07.100/MSA)

IMDC (2008r) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.14: Boundary conditions: Annual report (I/RA/11283/07.101/MSA)

IMDC (2008s) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 4.10: Analysis of siltation Processes and Factors (I/RA/11283/07.102/MSA)

IMDC (2008t) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.20: Sediment Balance: Three monthly report 1/4/2008 – 30/06/2008 (I/RA/11283/08.076/MSA)

IMDC (2008u) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.20: Through tide measurement Sediview during average tide Spring 2008 – 19 June 2008 (I/RA/11283/08.081/MSA)

IMDC (2008v) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.21: Through tide measurement Sediview during average tide Spring 2008 – 26 June 2008 (I/RA/11283/08.082/MSA)

IMDC (2008w) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.21: Sediment Balance: Three monthly report 1/7/2008 – 30/09/2008 (I/RA/11283/08.077/MSA)

IMDC (2008x) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.22: Through tide measurement Sediview during neap tide Summer 2008 – 24 September 2008 (I/RA/11283/08.083/MSA)

IMDC (2008y) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.28: Through tide measurement ADCP eddy Summer 2008 – 1 October 2008 (I/RA/11283/08.089/MSA)

IMDC (2008z) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.32: Salt-Silt distribution Deurganckdok: six monthly report 1/4/2008 – 30/9/2008 (I/RA/11283/08.093/MSA)

IMDC (2008aa) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.20: Boundary conditions: Six monthly report 1/4/2008 – 30/09/2008 (I/RA/11283/08.096/MSA)

IMDC (2009a) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.23: Through tide measurement Sediview during spring tide Summer 2008 – 30 September 2008 (I/RA/11283/08.084/MSA)

IMDC (2009b) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.29: Through tide measurement SiltProfiler summer 2008 – 29 September 2008 (I/RA/11283/07.090/MSA)

IMDC (2009c) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.34: Calibration stationary & mobile equipment autumn 2008 (I/RA/11283/08.095/MSA)

IMDC (2009d) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.22: Sediment Balance: Three monthly report 1/10/2008 – 31/12/2008 (I/RA/11283/08.078/MSA)

IMDC (2009e) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.24: Through tide measurement Sediview during neap tide Autumn 2008 (I/RA/11283/08.085/MSA)

IMDC (2009f) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.25: Through tide measurement Sediview during spring tide Autumn 2008 (I/RA/11283/08.086/MSA)

IMDC (2009g) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.23: Sediment Balance: Three monthly report 1/01/2009 – 31/03/2009 (I/RA/11283/08.079/MSA)

IMDC (2009h) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing Deelrapport 1.24: Annual Sediment Balance (I/RA/11283/08.080/MSA)

IMDC (2009i) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.26: Through tide measurement Sediview during neap tide Winter 2009 (I/RA/11283/08.087/MSA)

IMDC (2009j) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.30: Through tide measurement SiltProfiler winter 2009 (I/RA/11283/08.091/MSA)

IMDC (2009k) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.31: Through tide measurement Salinity Profiling winter 2009 (I/RA/11283/08.092/MSA)

IMDC (2009l) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.33: Salt-Silt distribution Deurganckdok: six monthly report 1/10/2008 – 31/3/2009 (I/RA/11283/08.094/MSA)

IMDC (2009m) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 3.21: Boundary conditions: Six monthly report 1/10/2008 – 31/03/2009 (I/RA/11283/08.097/MSA)

IMDC (2009n) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.27: Through tide measurement Sediview during spring tide Winter 2009 (I/RA/11283/08.088/MSA)

IMDC (2009o) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 4.20: Analysis of siltation Processes and Factors (I/RA/11283/08.098/MSA)

TV SAM (2006a) Langdurige stationaire ADCP stroommetingen te Oosterweel dukdalf 01/2005-06/2005. 42SR S032PIB 2A.

TV SAM (2006b) Langdurige stationaire ADCP stroommetingen te Oosterweel dukdalf 07/2005-12/2005. 42SR S033PIB 2A.

TV SAM (2006c) Langdurige stationaire ADCP stroommetingen te Oosterweel dukdalf 01/2006-06/2006. 42SR S032PIB 2A.

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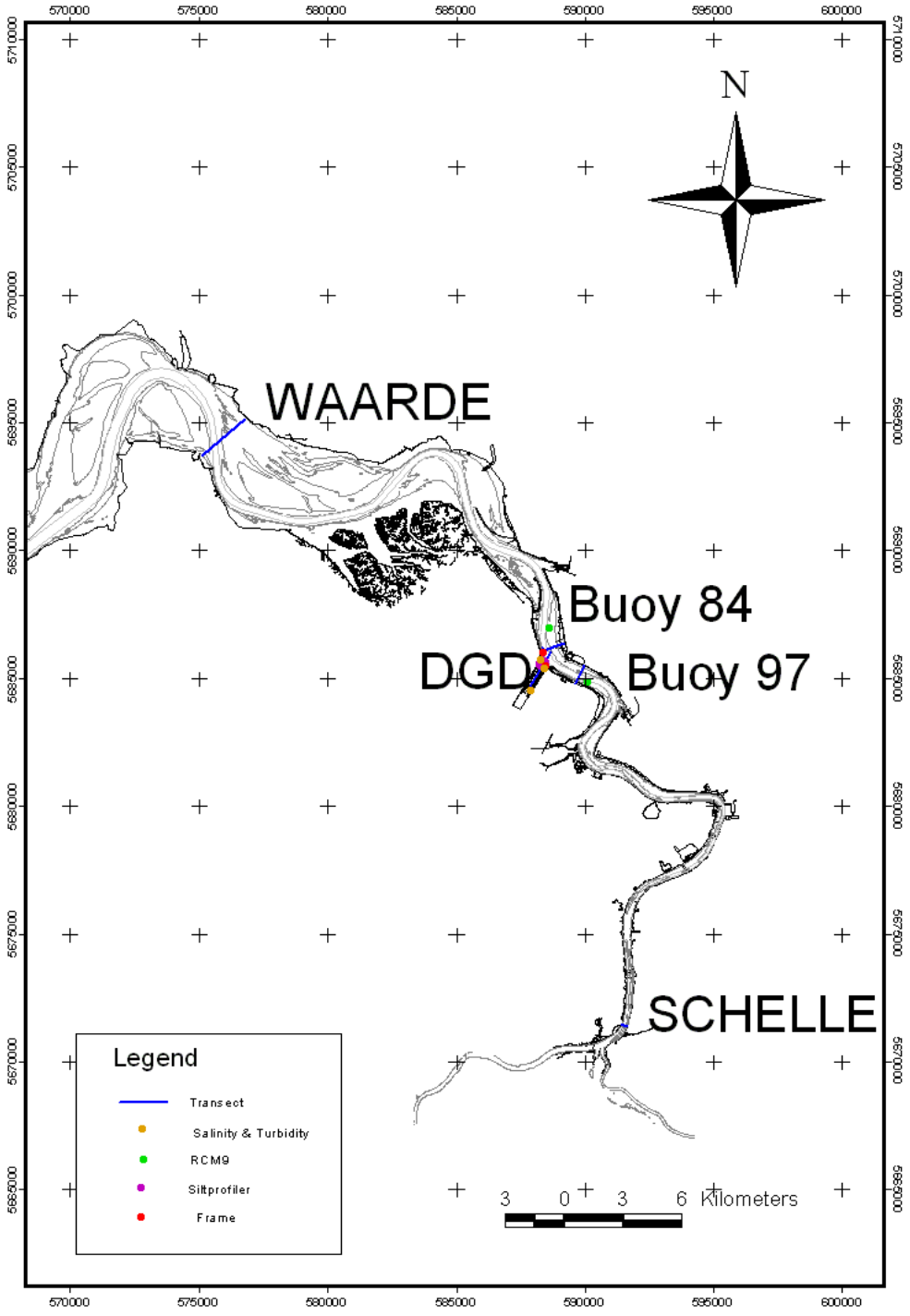
HMCZ (2008) Hydro Meteo Centrum Zeeland: www.hmcz.nl

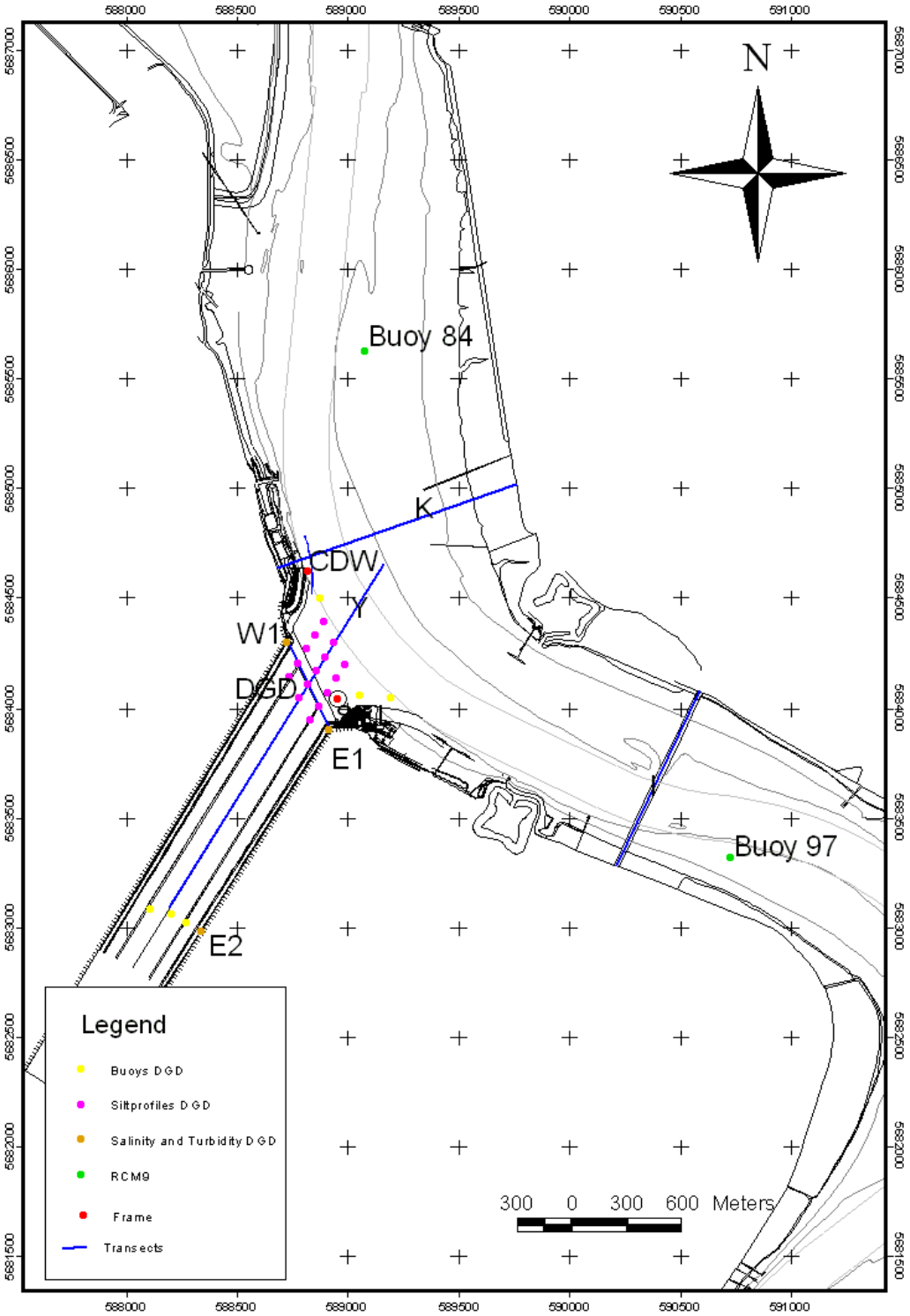
APPENDIX A.

OVERVIEW OF MEASUREMENT

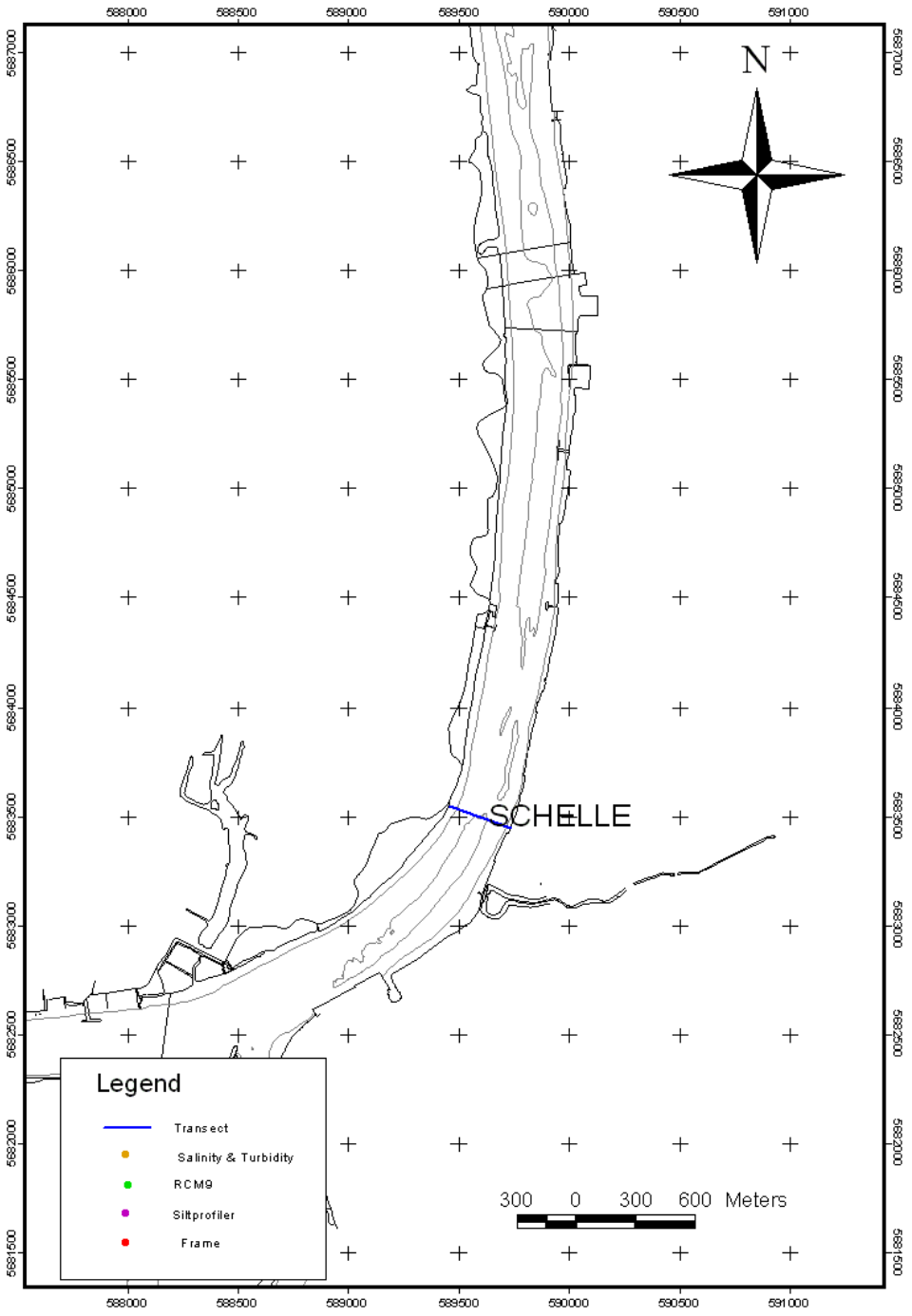
A.1 Overview of the measurement locations for the whole HCBS2 and Deurganckdok measurement campaigns



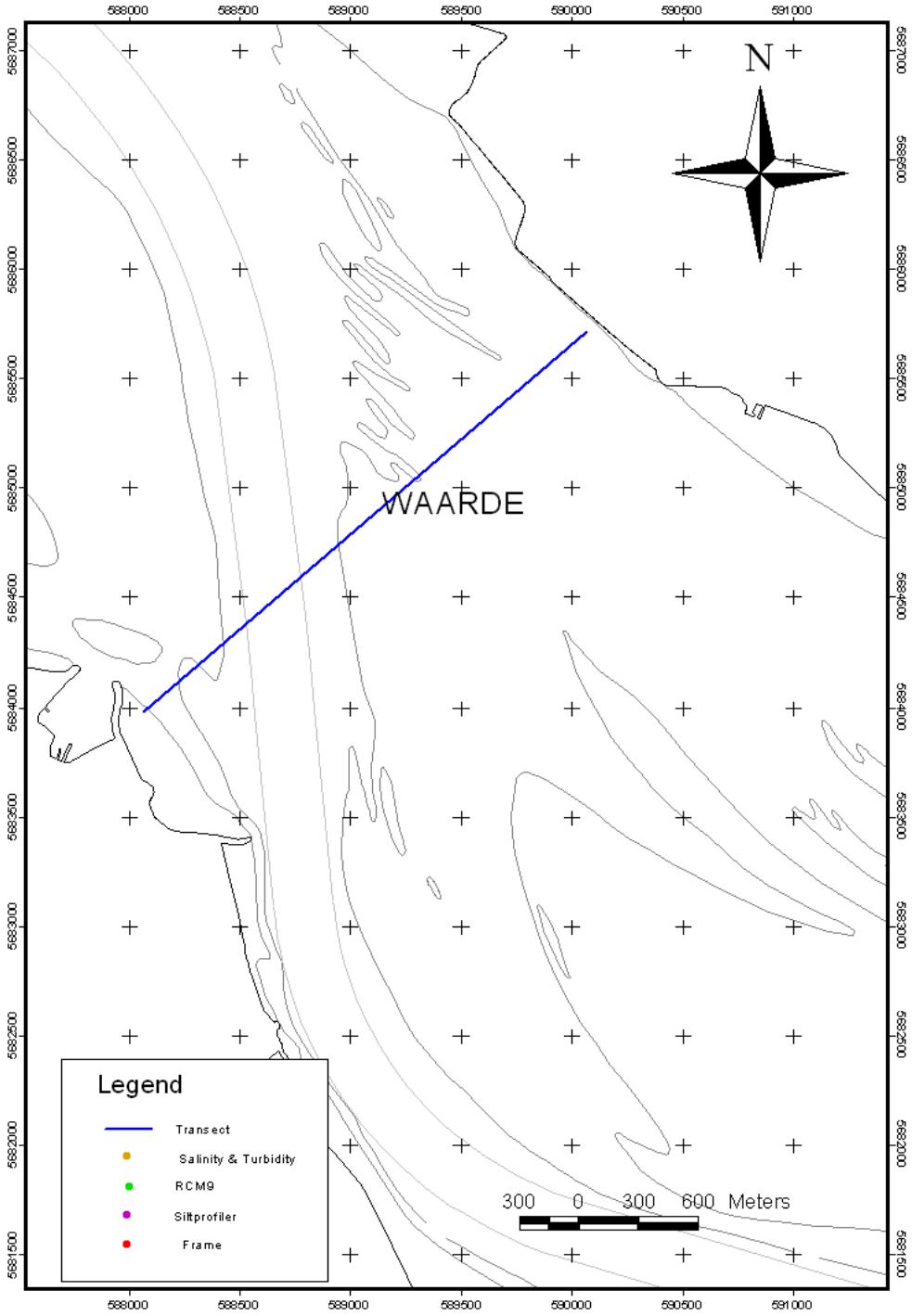
Annex Figure A-1: Overview of the measurement locations



Annex Figure A-2: Overview of the measurement locations at Deurganckdok



Annex Figure A-3: Transect S in Schelle



Annex Figure A-4: Transect W in Waarde

A.2 Overview of all measurement locations HCBS and Deurganckdok measurement campaigns

Annex Table A-1: coordinates of theoretical transects

Transect	*Start Easting*	*Start Northing*	*End Easting*	*End Northing*
I	590318.00	5683302.00	590771.00	5684257.00
K	588484.00	5684924.00	589775.00	5685384.00
SCHELLE	592645.07	5665794.06	592952.68	5665682.28
DGD	588764.88	5684056.49	588540.95	5684526.94
Y	589059.09	5684948.36	587898.76	5683076.56
WAARDE	573541.00	5696848.20	571318.00	5694932.90

Annex Table A-2: coordinates of SiltProfiler gauging locations

SP	*EASTING*	*NORTHING*
1	588737	5684638
2	588690	5684562
3	588643	5684486
4	588596	5684411
5	588549	5684335
6	588606	5684217
7	588653	5684293
8	588700	5684368
9	588747	5684444
10	588793	5684520
11	588850	5684402
12	588803	5684326
13	588756	5684250
14	588709	5684174
15	588662	5684099

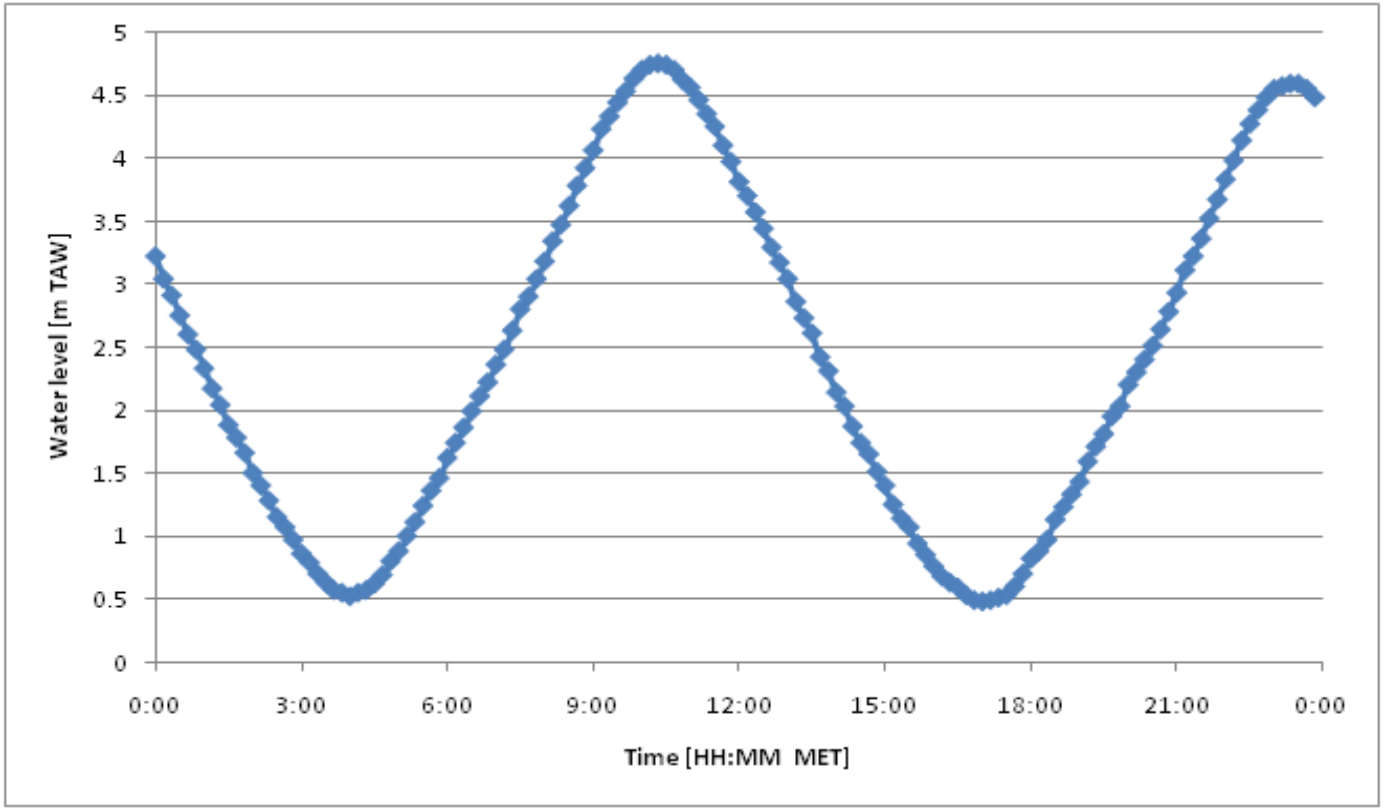
A.3 Measurement overview at Transect DGD on 06/03/2009

FileName	*End time [hh:mm MET]*	*Time after HW [hh:mm]*	*Easting Start (UTM31 ED50)*	*Northing Start (UTM31 ED50)*	*Easting Stop (UTM31 ED50)*	*Northing Stop (UTM31 ED50)*	*Transect length [m]*	*Transect heading [°]*
3002DGDtlr_sub.csv	5:12	1:12	588547	5684515	588758	5684067	496	115
3004DGDtrl_sub.csv	5:21	1:21	588547	5684520	588762	5684060	508	295
3006DGDtlr_sub.csv	5:31	1:31	588551	5684515	588759	5684069	492	115
3008DGDtrl_sub.csv	5:42	1:42	588548	5684516	588758	5684067	496	295
3010DGDtlr_sub.csv	5:52	1:52	588558	5684506	588759	5684065	485	115
3012DGDtrl_sub.csv	6:01	2:01	588547	5684517	588759	5684074	492	296
3014DGDtlr_sub.csv	6:10	2:10	588556	5684509	588759	5684059	494	114
3016DGDtrl_sub.csv	6:19	2:19	588546	5684523	588762	5684066	506	295
3018DGDtlr_sub.csv	6:29	2:29	588556	5684510	588765	5684067	489	115
3020DGDtrl_sub.csv	6:37	2:37	588546	5684521	588763	5684065	505	295
3022DGDtlr_sub.csv	6:48	2:48	588556	5684514	588764	5684062	498	115
3024DGDtrl_sub.csv	6:57	2:57	588546	5684523	588761	5684062	509	295
3026DGDtlr_sub.csv	7:06	3:06	588564	5684494	588760	5684063	474	114
3028DGDtrl_sub.csv	7:16	3:16	588547	5684519	588762	5684070	498	296
3030DGDtlr_sub.csv	7:25	3:25	588563	5684505	588761	5684060	487	114
3032DGDtrl_sub.csv	7:34	3:34	588548	5684517	588759	5684077	488	296
3034DGDtlr_sub.csv	7:45	3:45	588560	5684500	588761	5684060	484	115
3036DGDtrl_sub.csv	7:56	3:56	588547	5684522	588749	5684071	495	294
3038DGDtlr_sub.csv	8:06	4:06	588559	5684504	588761	5684068	481	115
3040DGDtrl_sub.csv	8:14	4:14	588549	5684522	588764	5684067	503	295
3042DGDtlr_sub.csv	8:24	4:24	588558	5684502	588764	5684060	488	115
3044DGDtrl_sub.csv	8:35	4:35	588547	5684523	588737	5684094	468	294
3046DGDtlr_sub.csv	8:50	4:50	588560	5684510	588756	5684083	470	115
3048DGDtrl_sub.csv	8:59	4:59	588551	5684524	588762	5684073	498	295
3050DGDtlr_sub.csv	9:15	5:15	588568	5684506	588763	5684064	483	114
3052DGDtrl_sub.csv	9:24	5:24	588549	5684518	588765	5684076	492	296
3054DGDtlr_sub.csv	9:34	5:34	588564	5684510	588765	5684065	488	114
3056DGDtrl_sub.csv	9:43	5:43	588546	5684519	588758	5684096	474	297
3058DGDtlr_sub.csv	9:54	5:54	588560	5684510	588766	5684062	493	115
3060DGDtrl_sub.csv	10:05	6:05	588546	5684524	588768	5684063	511	296
3062DGDtlr_sub.csv	10:14	6:14	588556	5684519	588767	5684067	498	115
3064DGDtrl_sub.csv	10:25	-6:34	588546	5684523	588750	5684083	484	295
3066DGDtlr_sub.csv	10:36	-6:23	588549	5684528	588765	5684068	508	115
3068DGDtrl_sub.csv	10:46	-6:13	588547	5684523	588762	5684074	497	296
3070DGDtlr_sub.csv	10:56	-6:03	588557	5684515	588765	5684066	495	115
3072DGDtrl_sub.csv	11:06	-5:53	588546	5684522	588759	5684073	497	295
3074DGDtlr_sub.csv	11:20	-5:39	588563	5684513	588767	5684067	490	115
3076DGDtrl_sub.csv	11:29	-5:30	588546	5684522	588757	5684067	501	295
3078DGDtlr_sub.csv	11:38	-5:21	588558	5684517	588767	5684067	497	115
3080DGDtrl_sub.csv	11:47	-5:12	588549	5684520	588758	5684080	486	295

FileName	*End time [hh:mm MET]*	*Time after HW [hh:mm]*	*Easting Start (UTM31 ED50)*	*Northing Start (UTM31 ED50)*	*Easting Stop (UTM31 ED50)*	*Northing Stop (UTM31 ED50)*	*Transect length [m]*	*Transect heading [°]*
3082DGDtlr_sub.csv	11:59	-5:00	588560	5684505	588763	5684062	488	115
3084DGDtrl_sub.csv	12:11	-4:48	588554	5684501	588767	5684072	478	296
3086DGDtlr_sub.csv	12:21	-4:38	588553	5684512	588763	5684063	495	115
3088DGDtrl_sub.csv	12:29	-4:30	588551	5684509	588765	5684075	484	296
3090DGDtlr_sub.csv	12:39	-4:20	588557	5684503	588764	5684063	486	115
3092DGDtrl_sub.csv	12:52	-4:07	588546	5684521	588775	5684067	509	297
3094DGDtlr_sub.csv	13:01	-3:58	588553	5684515	588762	5684063	498	115
3096DGDtrl_sub.csv	13:10	-3:49	588544	5684519	588763	5684075	495	296
3098DGDtlr_sub.csv	13:20	-3:39	588558	5684500	588762	5684061	485	115
3100DGDtrl_sub.csv	13:30	-3:29	588545	5684512	588763	5684078	486	297
3102DGDtlr_sub.csv	13:40	-3:19	588558	5684501	588762	5684059	486	115
3104DGDtrl_sub.csv	13:54	-3:05	588544	5684517	588767	5684066	503	296
3106DGDtlr_sub.csv	14:07	-2:52	588556	5684509	588762	5684066	489	115
3108DGDtrl_sub.csv	14:20	-2:39	588543	5684516	588751	5684072	490	295
3110DGDtlr_sub.csv	14:30	-2:29	588565	5684518	588764	5684062	498	114
3112DGDtrl_sub.csv	14:39	-2:20	588546	5684515	588759	5684069	495	296
3114DGDtlr_sub.csv	14:50	-2:09	588552	5684504	588765	5684065	488	116
3116DGDtrl_sub.csv	15:00	-1:59	588545	5684513	588751	5684077	483	295
3118DGDtlr_sub.csv	15:17	-1:42	588557	5684507	588762	5684063	489	115
3120DGDtrl_sub.csv	15:26	-1:33	588562	5684489	588733	5684099	426	294
3122DGDtlr_sub.csv	15:35	-1:24	588552	5684497	588764	5684065	482	116
3124DGDtrl_sub.csv	15:50	-1:09	588546	5684518	588757	5684073	493	295
3126DGDtlr_sub.csv	16:03	-0:56	588552	5684494	588761	5684064	478	116
3128DGDtrl_sub.csv	16:13	-0:46	588549	5684520	588757	5684067	499	295
3132DGDtrl_sub.csv	16:39	-0:20	588554	5684498	588748	5684072	468	294
3134DGDtlr_sub.csv	16:49	-0:10	588551	5684506	588761	5684065	489	115
3136DGDtrl_sub.csv	16:59	-0:00	588544	5684518	588750	5684062	500	294
3138DGDtlr_sub.csv	17:09	0:09	588551	5684525	588759	5684059	511	114
3140DGDtrl_sub.csv	17:19	0:19	588545	5684521	588745	5684065	497	294
3144DGDtlr_sub.csv	17:37	0:37	588544	5684516	588749	5684076	485	295
3146DGDtlr_sub.csv	17:46	0:46	588554	5684508	588759	5684064	489	115

APPENDIX B. TIDAL DATA

11283 – Winter 2009 SURVEY



Measured tide 06/03/2009 at Liefkenshoek

Location:	Date:
River Scheldt	06/03/2009

Data processed by: IMDC International Marine & Dredging Consultants

In association with: WL | delft hydraulics

I/RA/11283/08.087/MSA

APPENDIX C.

NAVIGATION INFORMATION AS RECORDED ON SITE

Ship: Parel II			***Date: 06/03/2009***
Location: Deurganckdok (transect DGD)			
Nr.	***Time (MET)***	***Type ship***	***Direction (Inbound, Outbound)***
1	7:13	binnenschip	Outbound
2	7:43	binnenschip	Outbound
3	8:08	binnenschip	Inbound
4	8:10	binnenschip	Inbound
5	8:37	binnenschip	Inbound
6	8:50	binnenschip	Outbound
7	8:51	binnenschip	Outbound
8	9:05	binnenschip	Outbound
9	9:39	binnenschip	Outbound
10	9:40	zeeschip	Inbound
11	9:45	binnenschip	Inbound
12	9:59	sleepboot	Inbound
13	10:01	binnenschip	Inbound
14	10:08	binnenschip	Inbound
15	10:10	binnenschip	Inbound
16	10:25	sleepboot	Outbound
17	10:31	binnenschip	Outbound
18	10:52	binnenschip	Inbound
19	10:57	sleepboot	Outbound
20	11:36	binnenschip	Outbound
21	12:45	binnenschip	Outbound
22	13:07	binnenschip	Outbound
23	13:32	binnenschip	Outbound
24	13:44	binnenschip	Inbound
25	13:45	binnenschip	Inbound
26	14:17	binnenschip	Outbound
27	14:40	zeeschip	Outbound
28	14:40	sleepboot	Outbound
29	14:50	binnenschip	Inbound
30	15:00	binnenschip	Inbound
31	15:04	binnenschip	Outbound
32	15:16	binnenschip	Outbound
33	15:46	binnenschip	Inbound

Ship: Parel II			***Date: 06/03/2009***
Location: Deurganckdok (transect DGD)			
Nr.	***Time (MET)***	***Type ship***	***Direction (Inbound, Outbound)***
34	15:56	binnenschip	Outbound
35	16:04	zeeschip + sleep	Inbound
36	16:08	binnenschip	Inbound
37	16:39	binnenschip	Outbound
38	16:43	sleepboot	Outbound
39	16:55	binnenschip	Outbound
40	17:06	binnenschip	Outbound
41	17:13	binnenschip	Inbound
42	17:23	binnenschip	Inbound
43	17:46	binnenschip	Inbound
44	17:52	binnenschip	Outbound

APPENDIX D.

UNESCO PSS-78 FORMULA FOR CALCULATING SALINITY

Practical Salinity Scale (PPS 78) Salinity in the range of 2 to 42

Constants from the 19th Edition of Standard Methods

R cond.ratio	0.0117	$R = \frac{C}{42.914 mS/cm}$
C Cond at t	**0.5**	**Input conductivity in mS/cm of sample**
t deg. C	**22.00**	**Input temperature of sample solution**
P dBar	**20**	**Input pressure at which sample is measured in decibars**
Rp	1.0020845	$R_p = 1 + \frac{p(e_1 + e_2 p + e_3 p^2)}{1 + d_1 t + d_2 t^2 + (d_3 + d_4 t)R}$
rt	1.1641102	$r_t = c_0 + c_1 t + c_2 t^2 + c_3 t^3 + c_4 t^4$
Rt	0.0099879	$R_t = \frac{R}{R_p \times r_t}$
Delta S	-0.0010	$\text{Delta S} = \frac{(t-15)}{1+k(t-15)}(b_0 + b_1 R_t^{1/2} + b_2 R_t + b_3 R_t^{3/2} + b_4 R_t^2 + b_5 R_t^{5/2})$
S = Salinity	**0.257**	$S = a_0 + a_1 R_t^{1/2} + a_2 R_t + a_3 R_t^{3/2} + a_4 R_t^2 + a_5 R_t^{5/2} + \text{delta S}$

a0	0.0080	b0	0.0005	c0	0.6766097	d1	3.426E-02	e1	2.070E-04
a1	-0.1692	b1	-0.0056	c1	2.00564E-02	d2	4.464E-04	e2	-6.370E-08
a2	25.3851	b2	-0.0066	c2	1.104259E-04	d3	4.215E-01	e3	3.989E-12
a3	14.0941	b3	-0.0375	c3	-6.9698E-07	d4	-3.107E-03		
a4	-7.0261	b4	0.0636	c4	1.0031E-09				
a5	2.7081	b5	-0.0144						
		k	0.0162						

R = ratio of measured conductivity to the conductivity of the Standard Seawater Solution

Conductivity Ratio R is a function of salinity, temperature, and hydraulic pressure. So that we can factor R into three parts i.e.

R = Rt x Rp x rt

R = C(S,t,p)/C(35,15,0)

C = 42.914 mS/cm at 15 deg C and 0 dbar pressure ie C(35,15,0) where 35 is the salinity

Ocean pressure is usually measured in decibars. 1 dbar = 10^-1 bar = 10^5 dyne/cm^2 = 10^4 Pascal.

APPENDIX E. OVERVIEW OF SEDIVIEW SETTINGS

Ship:		***Parel II***	
Location:		***Deurganckdok (transect DGD)***	
Date		***06/03/2009***	
Parameters	***Value***	***Parameters***	***Value***
Inst. Depth (m)	0.5	*Compass offset (°)*	-7.5
Force depth (m)	0	*Beam 3 misalignment (°)*	45
Velocity reference	BT	*Effective particle size (µm)*	20
Speed of sound algorithm	Urick	*Beam1 scale factor*	0.445
Error velocity	YES	*Beam2 scale factor*	0.430
External heading	NO	*Beam3 scale factor*	0.420
External Depth	NO	*Beam4 scale factor*	0.425
SSC factor top (%)	100	*Discharge factor top*	Constant
SSC factor bottom (%)	125	*Discharge factor bottom*	Power
Shape factor left bank	0.91	*Shape factor right bank*	0.91

Filename	***Calibration const (Ks)***	***Backscatter coefficient (S)***	***Distance to the left bank (m)***	***Distance to the right bank (m)***
3002 DGD tlr	61	20	13.0	13.0
3004 DGD trl	61	19.75	8.8	5.0
3006 DGD tlr	61	19.5	15.4	13.9
3008 DGD trl	61	19.5	13.1	13.0
3010 DGD tlr	61	19.5	25.8	11.2
3012 DGD trl	61	20	11.5	18.4
3014 DGD tlr	61	20.25	23.0	5.1
3016 DGD trl	61	20	5.6	10.1
3018 DGD tlr	61	19.75	21.8	10.5
3020 DGD trl	61	19.75	7.4	9.6
3022 DGD Tlr	61	19.5	18.0	6.0
3024 DGD Trl	61	19	5.8	7.2
3026 DGD tlr	61	19	39.6	8.4
3028 DGD trl	61	19.25	10.0	13.5
3030 DGD tlr	61	19.5	29.1	5.9
3032 DGD trl	61	19.75	12.1	21.5
3034 DGD tlr	61	20	32.4	5.6
3036 DGD trl	61	19.75	6.7	20.3
3038 DGD tlr	61	19.5	28.3	12.3
3040 DGD trl	61	19.5	8.5	10.4
3042 DGD tlr	61	19.25	29.5	4.0
3044 DGD trl	61	19	6.3	47.0

Filename	*Calibration const (Ks)*	*Backscatter coefficient (S)*	*Distance to the left bank (m)*	*Distance to the right bank (m)*
3046 DGD tlr	61	19.5	23.4	28.6
3048 DGD trl	61	19.75	7.2	16.4
3050 DGD tlr	61	19.25	30.7	8.5
3052 DGD trl	61	19	11.1	18.2
3054 DGD tlr	61	19.5	25.3	8.6
3056 DGD trl	61	19.75	8.8	39.1
3058 DGD tlr	61	18.75	23.9	5.1
3060 DGD trl	61	18.5	5.4	5.0
3062 DGD tlr	61	19	14.3	9.3
3064 DGD trl	61	19	5.9	31.4
3066 DGD tlr	61	19.25	2.8	11.0
3068 DGD trl	61	19.25	6.4	17.8
3070 DGD tlr	61	18	17.6	8.5
3072 DGD trl	61	17.5	6.8	17.7
3074 DGD tlr	61	17.25	21.9	9.4
3076 DGD trl	61	17	6.5	13.6
3078 DGD tlr	61	17.25	16.3	8.7
3080 DGD trl	61	17	10.4	24.7
3082 DGD tlr	61	16.75	27.7	5.8
3084 DGD trl	61	16.75	29.3	14.1
3086 DGD tlr	61	16.75	19.1	7.2
3088 DGD trl	61	17	20.9	17.0
3090 DGD tlr	61	17.25	29.0	6.8
3092 DGD trl	61	17.75	7.3	5.7
3094 DGD tlr	61	18	15.8	7.3
3096 DGD trl	61	17.5	8.2	18.1
3098 DGD tlr	61	16.75	31.3	5.8
3100 DGD trl	61	16.5	15.2	20.6
3102 DGD tlr	61	16.75	30.8	4.4
3104 DGD tlr	61	16.25	10.3	7.9
3106 DGD tlr	61	15.5	22.7	10.1
3108 DGD trl	61	16	11.0	20.7
3110 DGD tlr	61	16	18.1	5.3
3112 DGD trl	61	16.25	12.9	13.7
3114 DGD tlr	61	16.75	25.5	7.9
3116 DGD trl	61	17	14.1	24.8
3118 DGD tlr	61	18	24.9	7.4
3120 DGD trl	61	18.25	43.4	52.8
3122 DGD tlr	61	18.75	31.4	8.6
3124 DGD trl	61	18.3333	10.4	18.6
3126 DGD tlr	61	18.125	34.5	9.2

Filename	*Calibration const (Ks)*	*Backscatter coefficient (S)*	*Distance to the left bank (m)*	*Distance to the right bank (m)*
3128 DGD trl	61	18.1667	9.5	13.4
3130 DGD tlr	61	18.25	31.7	21.8
3132 DGD trl	61	18.5	23.2	9.8
3134 DGD tlr	61	18.75	9.4	11.8
3136 DGD trl	61	19.25	5.6	5.1
3138 DGD tlr	61	19.5	7.5	17.2
3140 DGD trl	61	19.75	11.0	25.3
3142 DGD tlr	61	20	22.7	9.5
3144 DGD trl	61	20	13.0	13.0
3146 DGD tlr	61	19.5	8.8	5.0

APPENDIX F.CONTOURPLOTS OF FLOW VELOCITIES, SEDIMENT CONCENTRATION AND SEDIMENT FLUX PER SAILED TRANSECT

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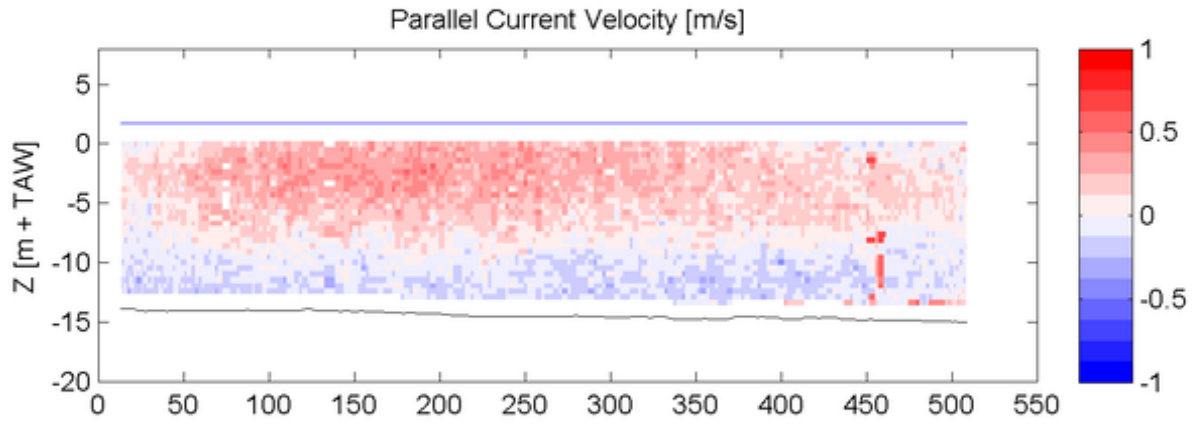

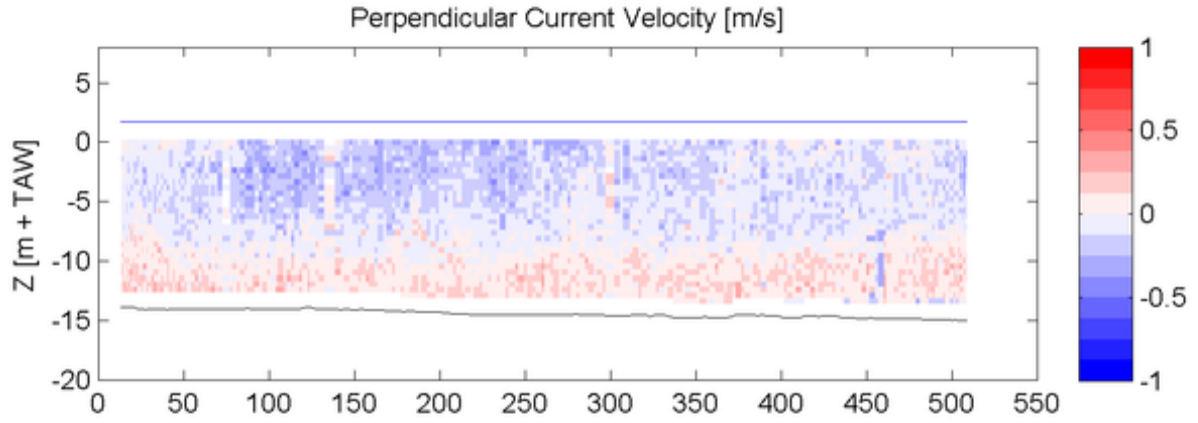

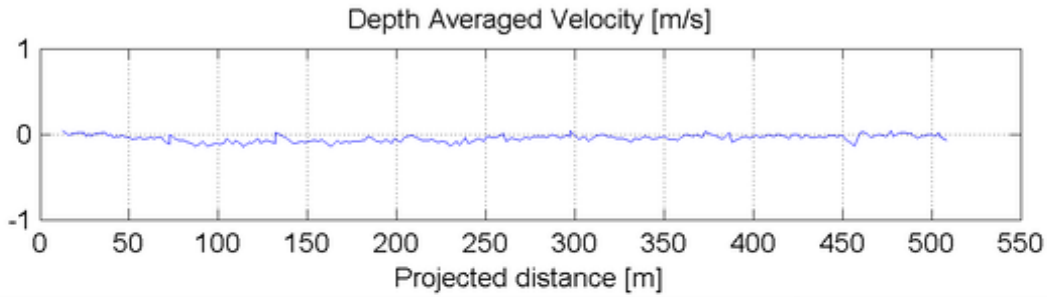

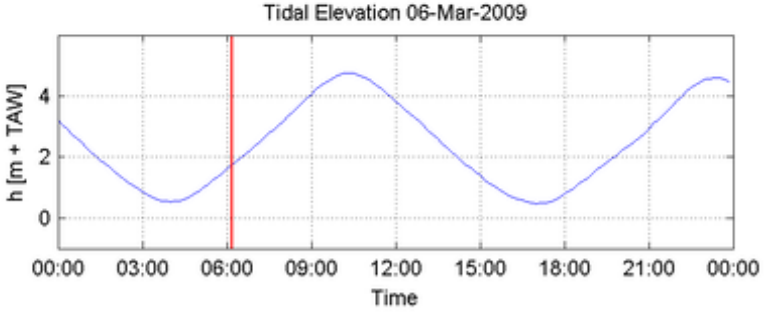

HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:09 - 06:12

Time after HW [HH:MM]
-4:09

Data Processed by:

In association with :

I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

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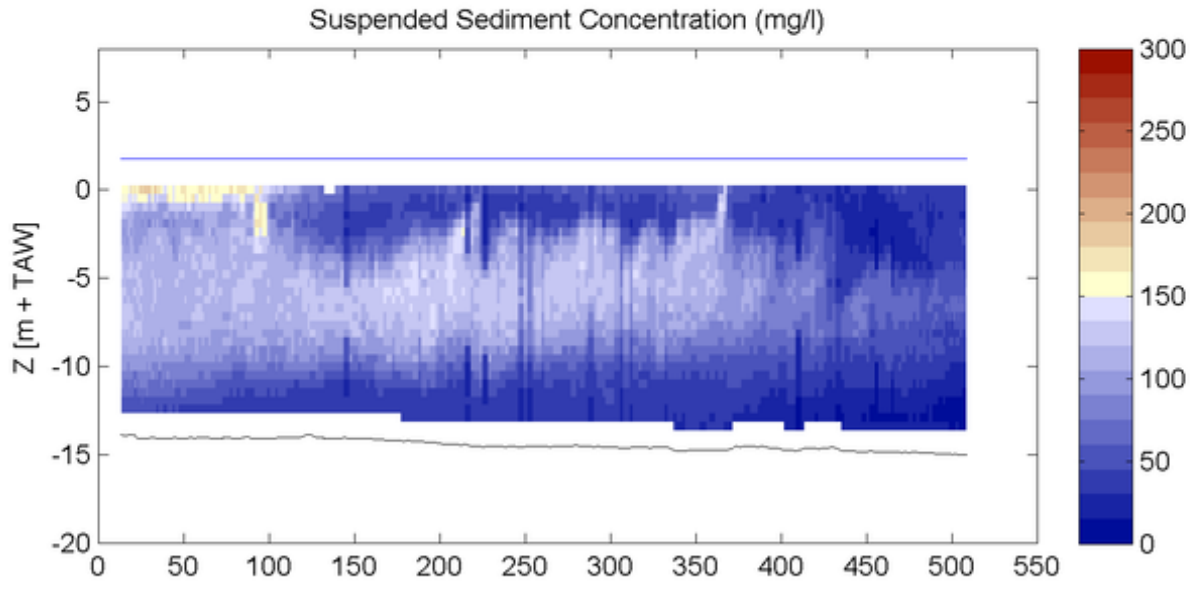
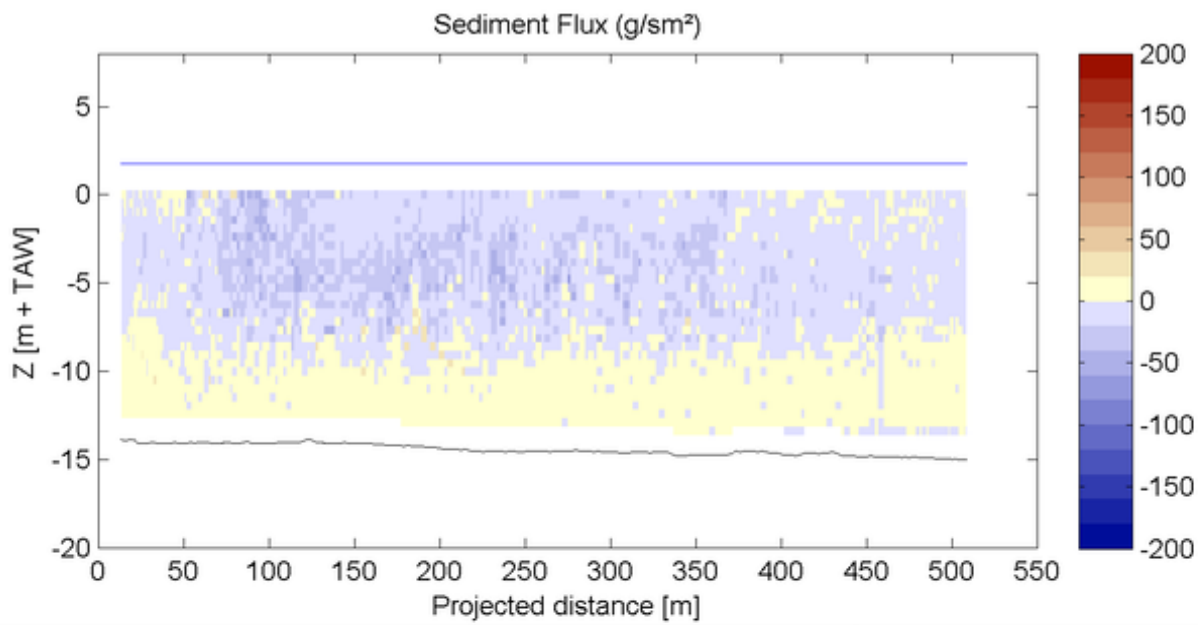
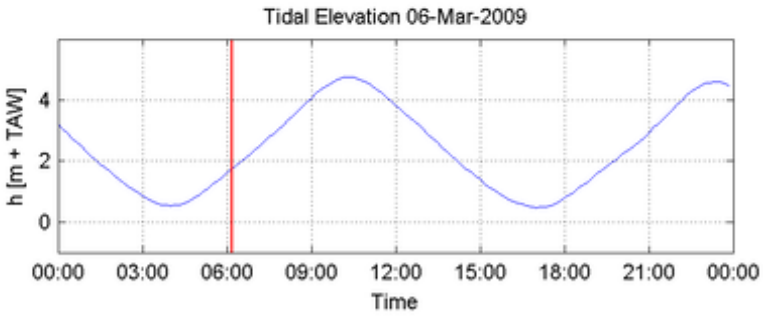
Sourcefile: 3002DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
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17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:09 - 06:12

Time after HW [HH:MM]
-4:09

Data Processed by:

In association with :

I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

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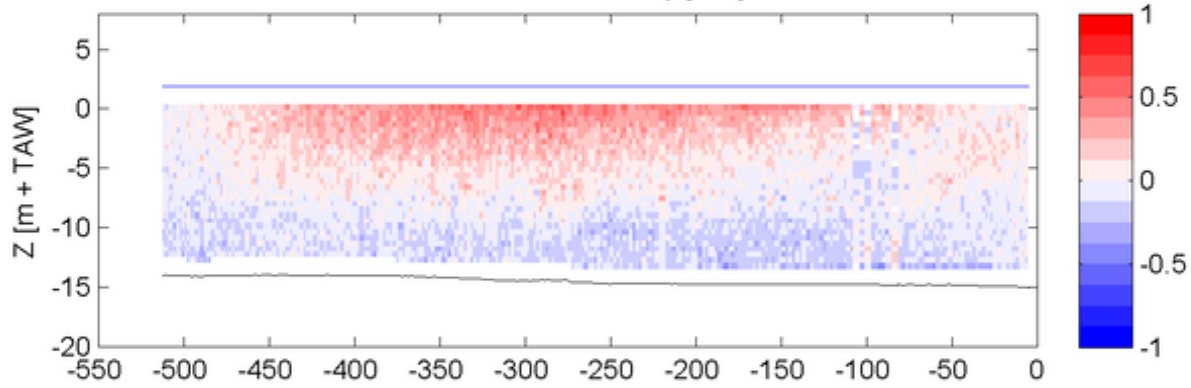

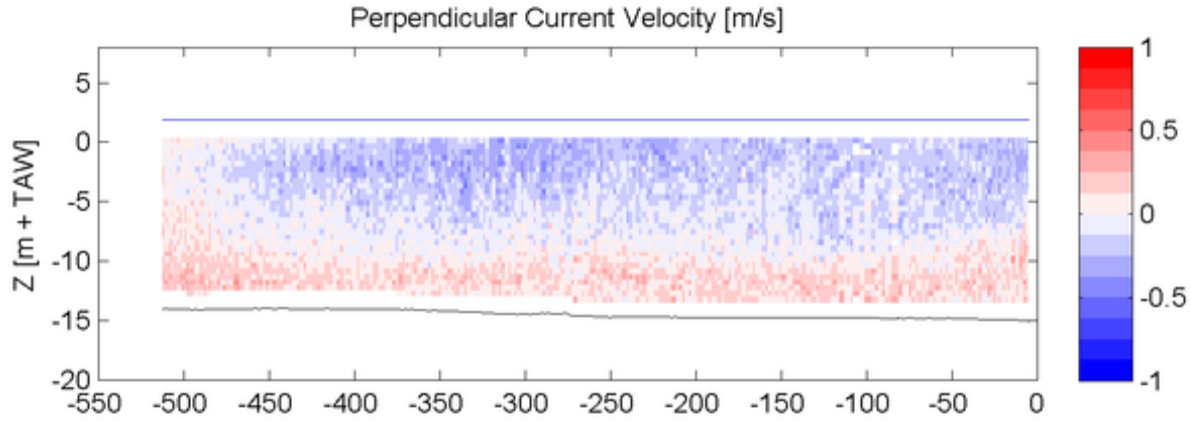

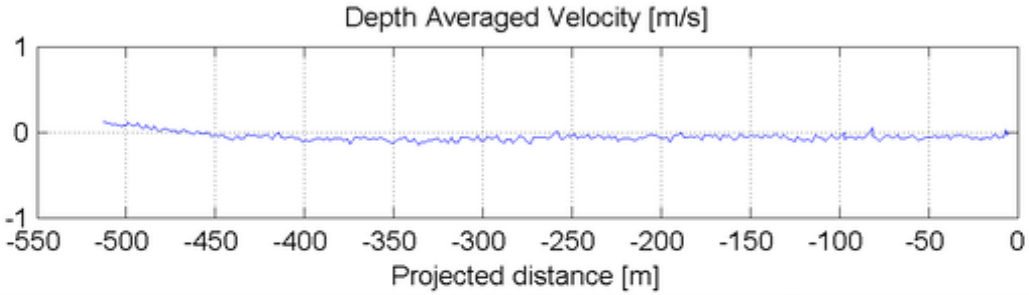

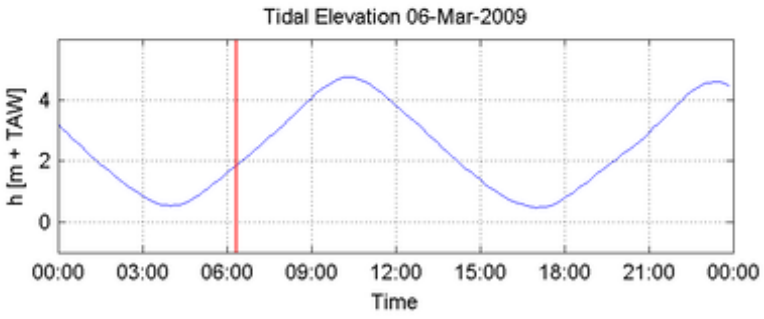

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17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:18 - 06:21

Time after HW [HH:MM]
-3:59

Data Processed by:

In association with :

I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

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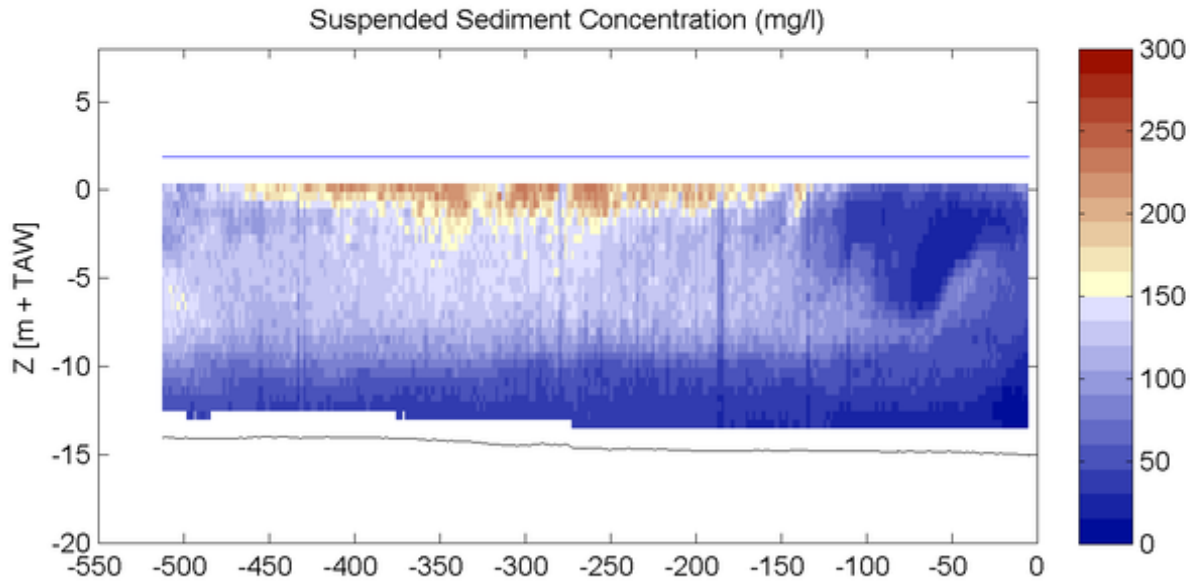

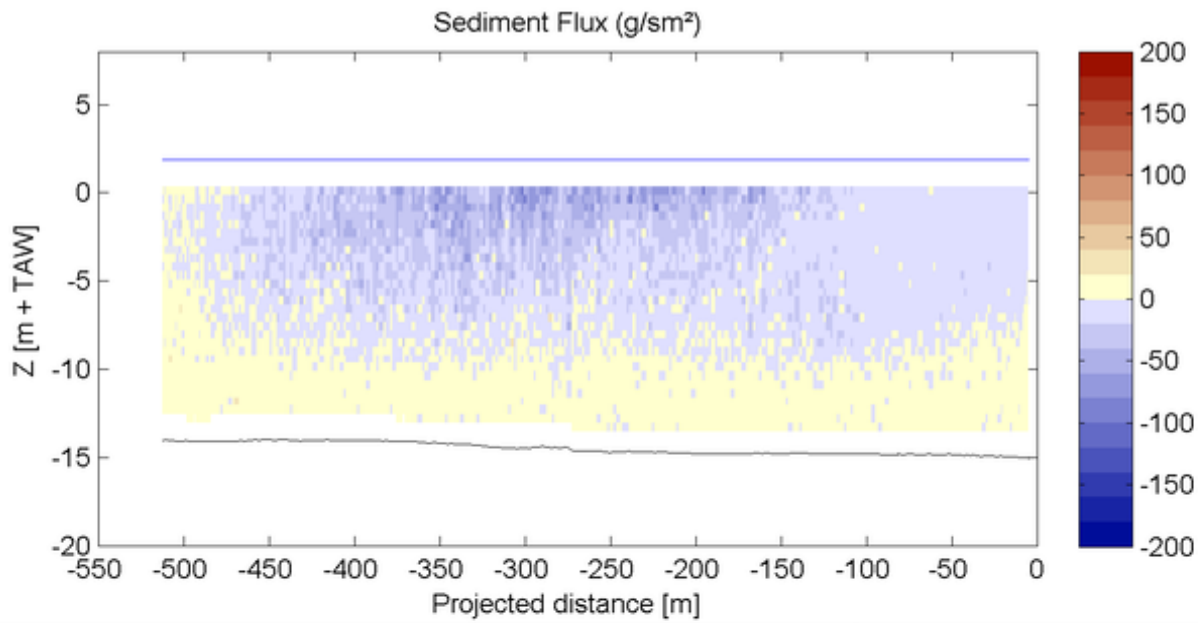

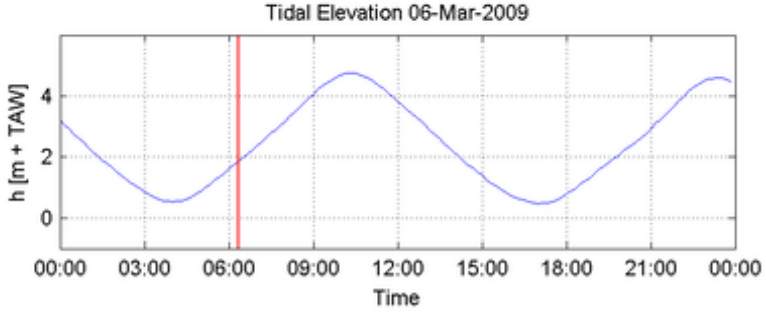

HW/LW:
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17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:18 - 06:21

Time after HW [HH:MM]
-3:59

Data Processed by:

In association with :

I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

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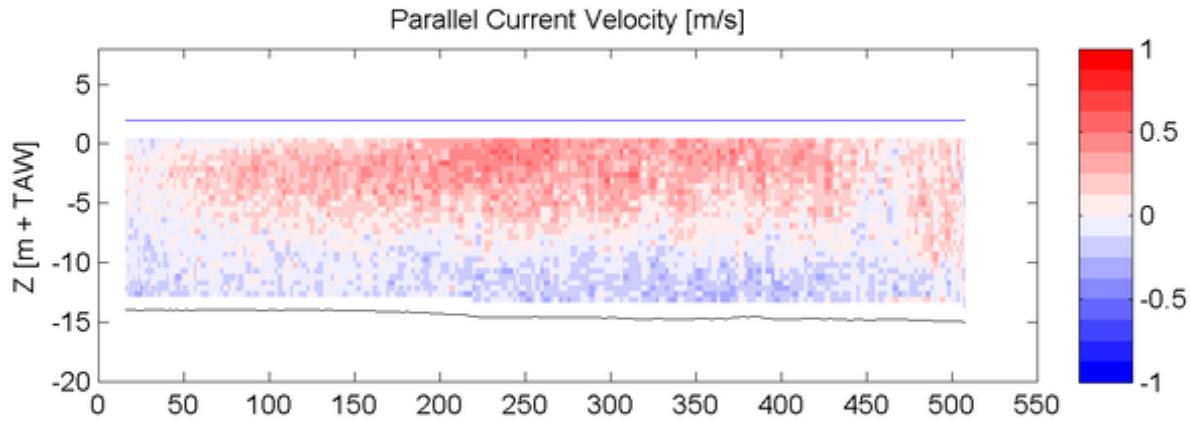

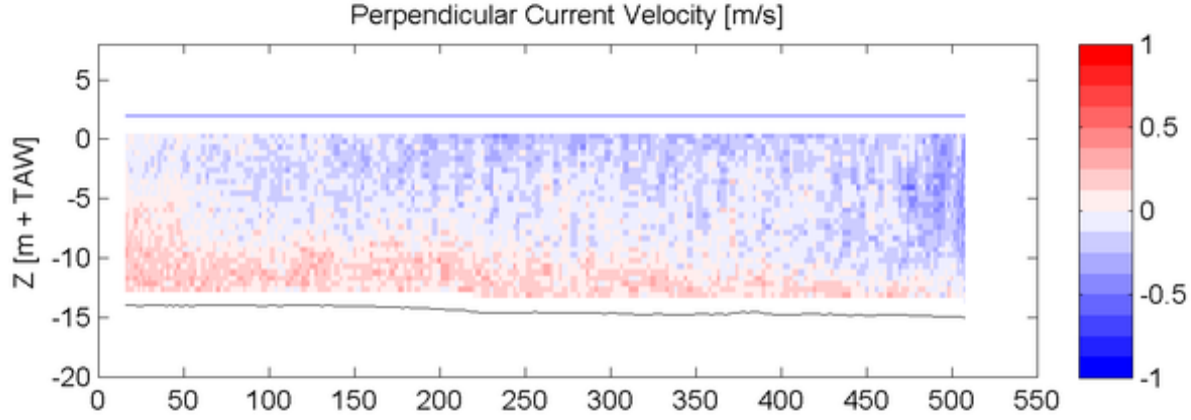

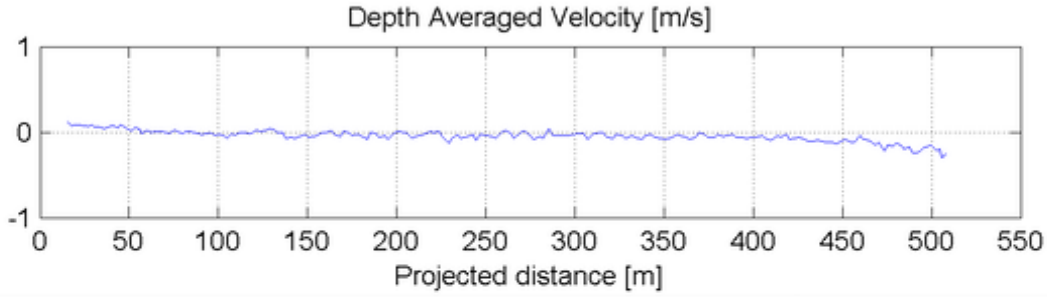

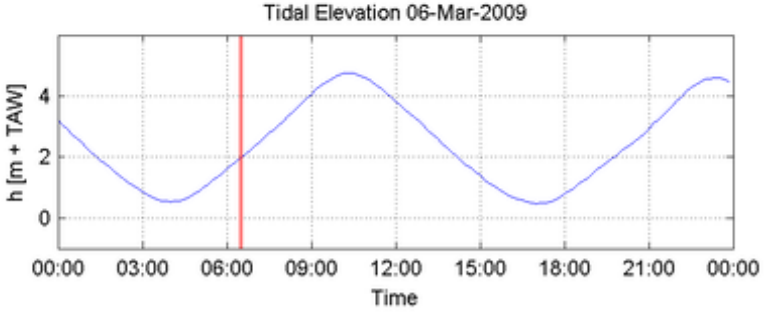

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23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:28 - 06:31

Time after HW [HH:MM]
-3:49

Data Processed by:

In association with :

I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

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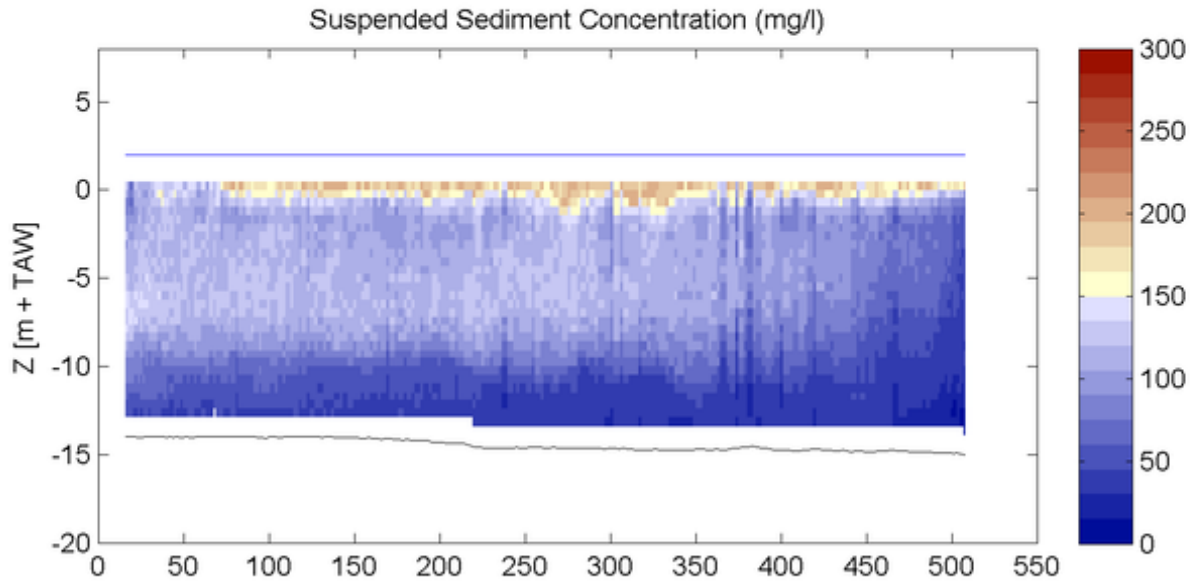

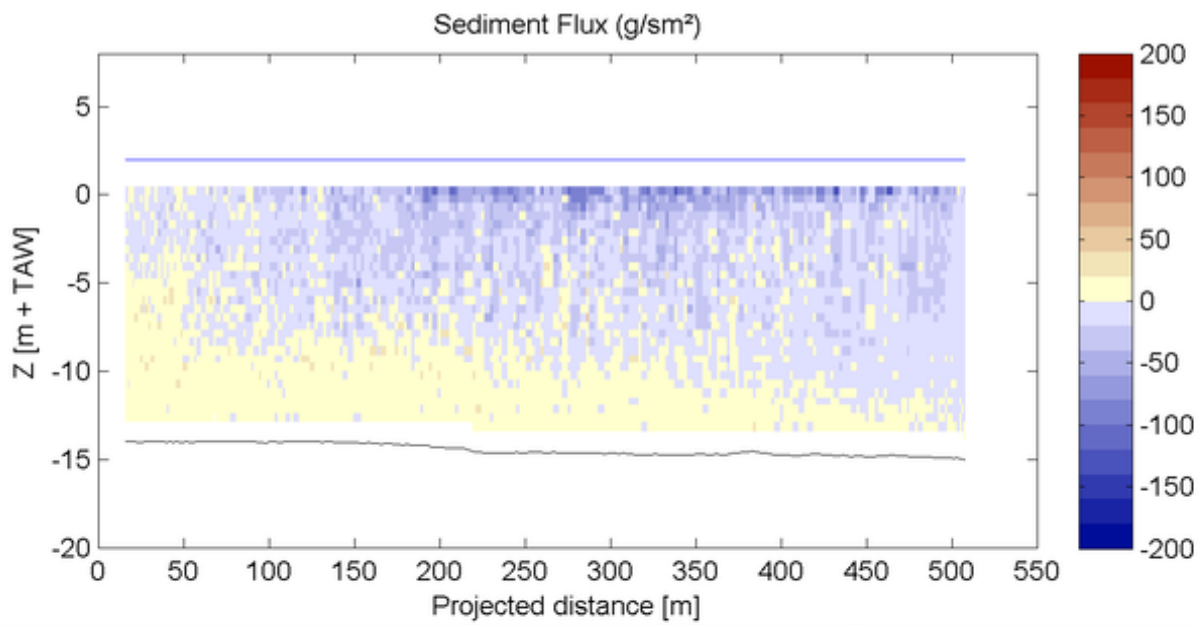

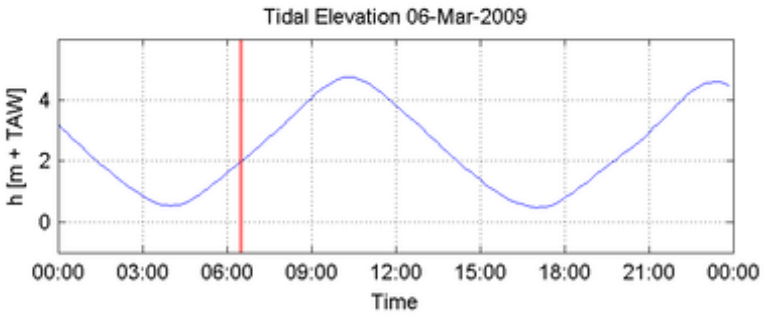

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17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:28 - 06:31

Time after HW [HH:MM]
-3:49

Data Processed by:

In association with :

I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

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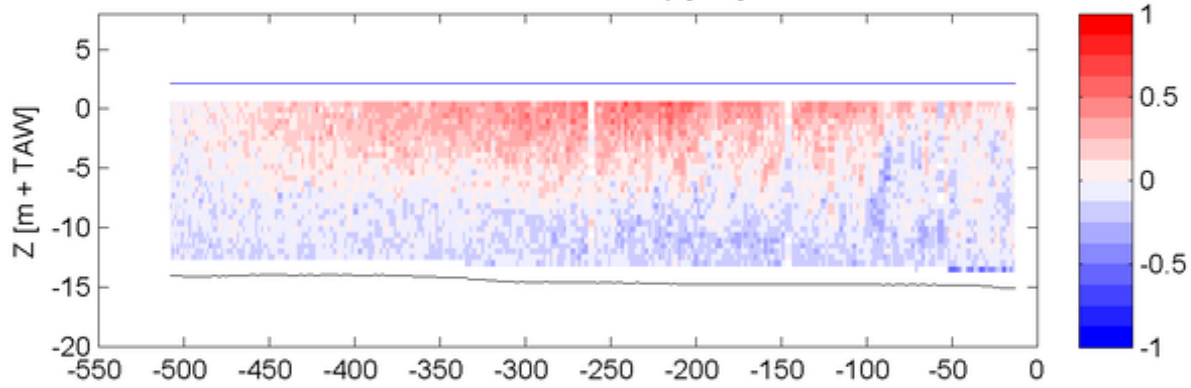
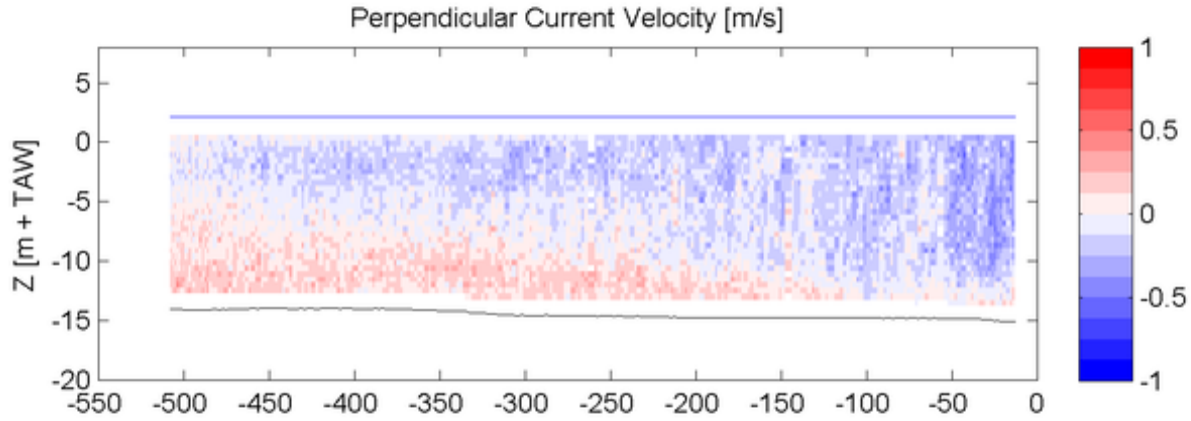
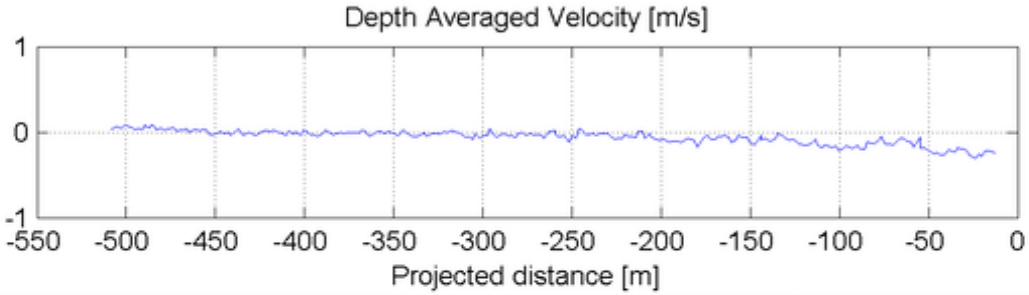
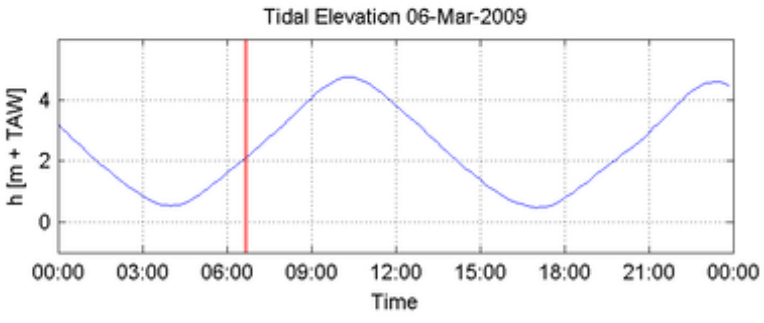








HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:39 - 06:42

Time after HW [HH:MM]
-3:39

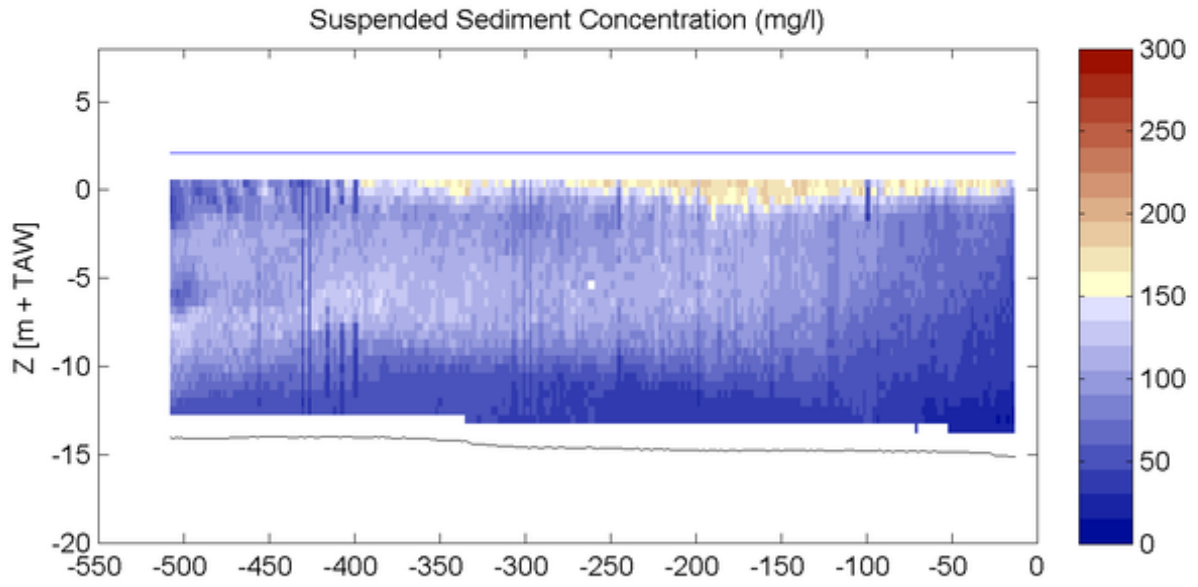
Data Processed by:

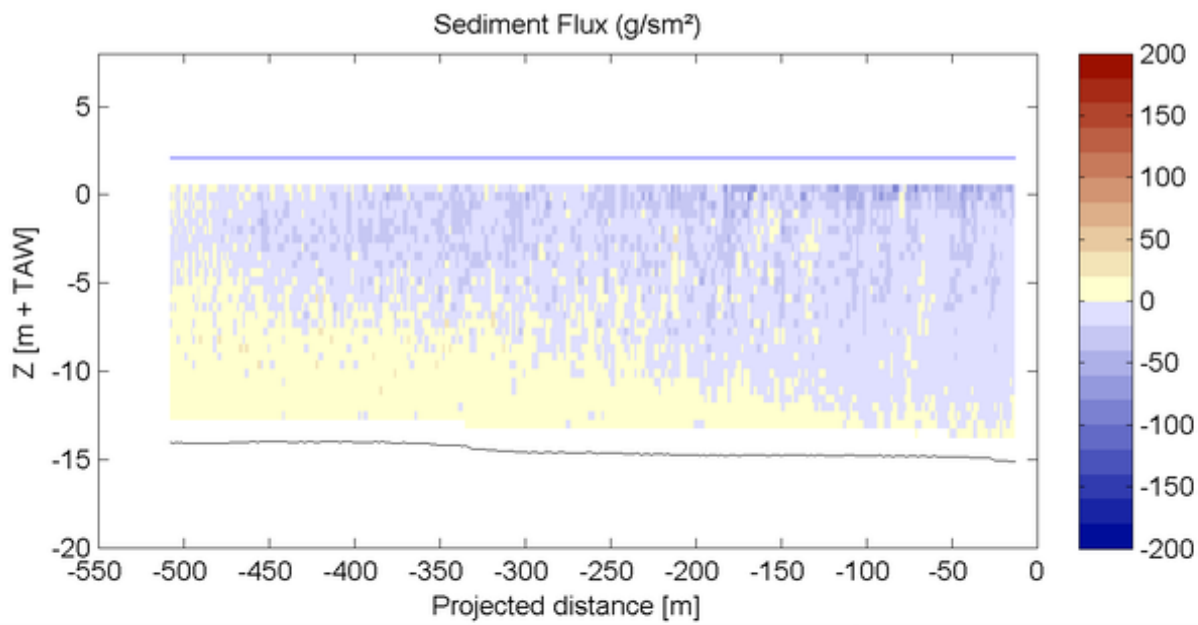
In association with :

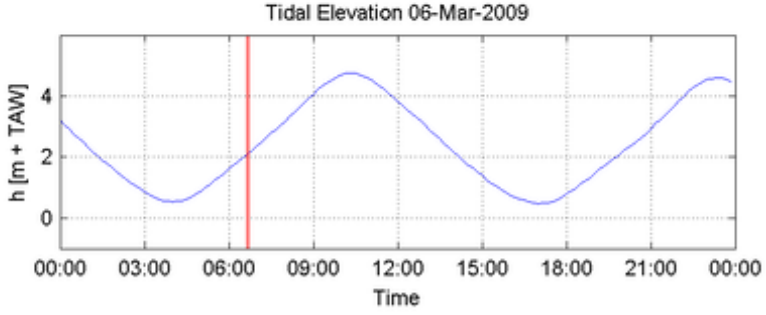
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3008DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:39 - 06:42

Time after HW [HH:MM]
-3:39

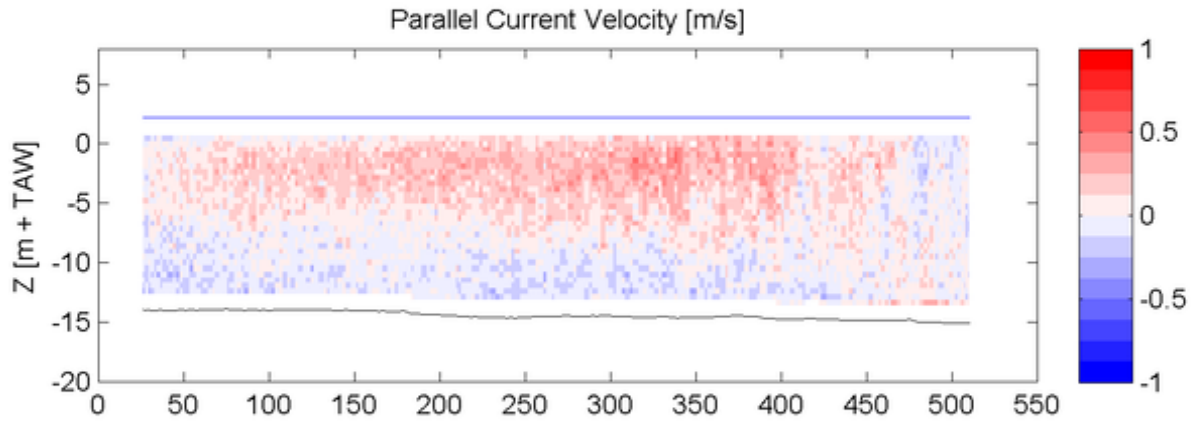
Data Processed by:

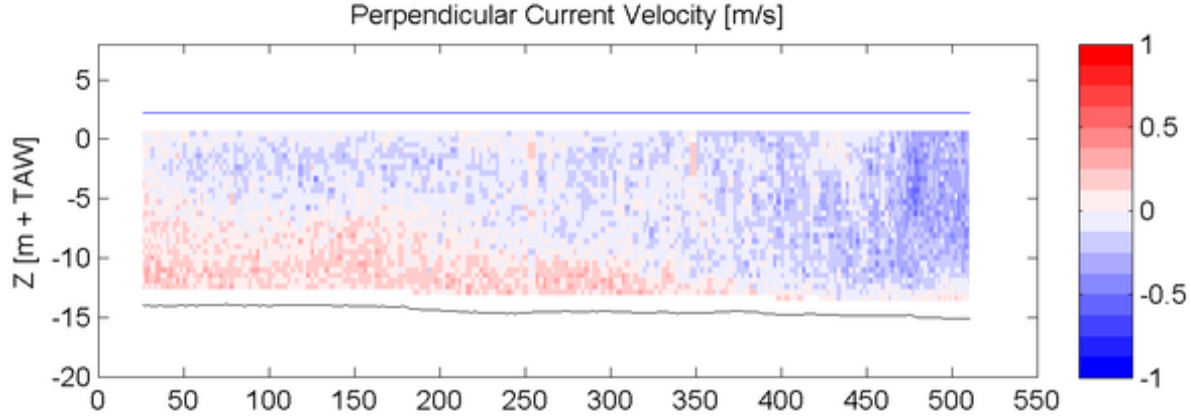
In association with :

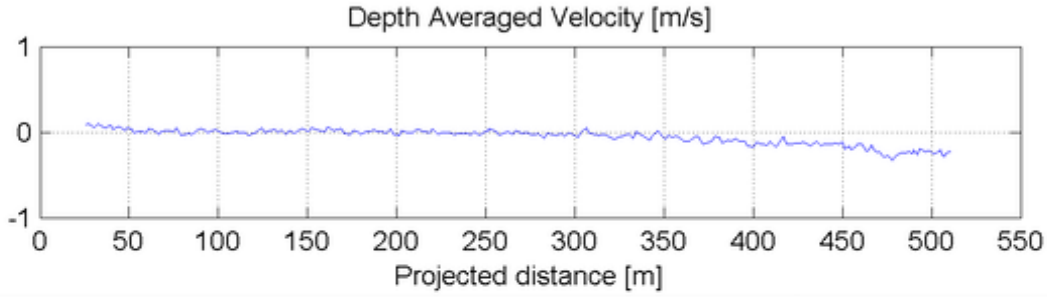
I/RA/11283/08.087/MSA

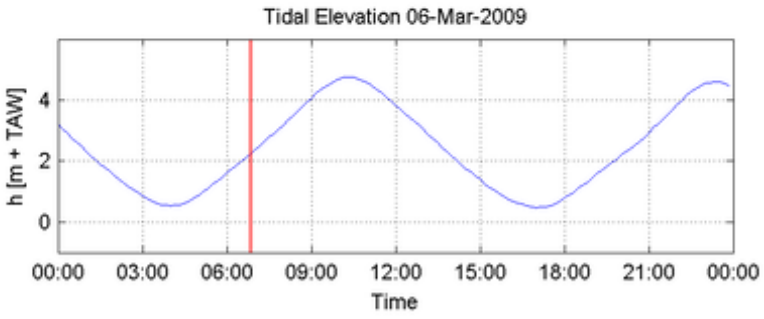
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3010DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:49 - 06:52

Time after HW [HH:MM]
-3:29

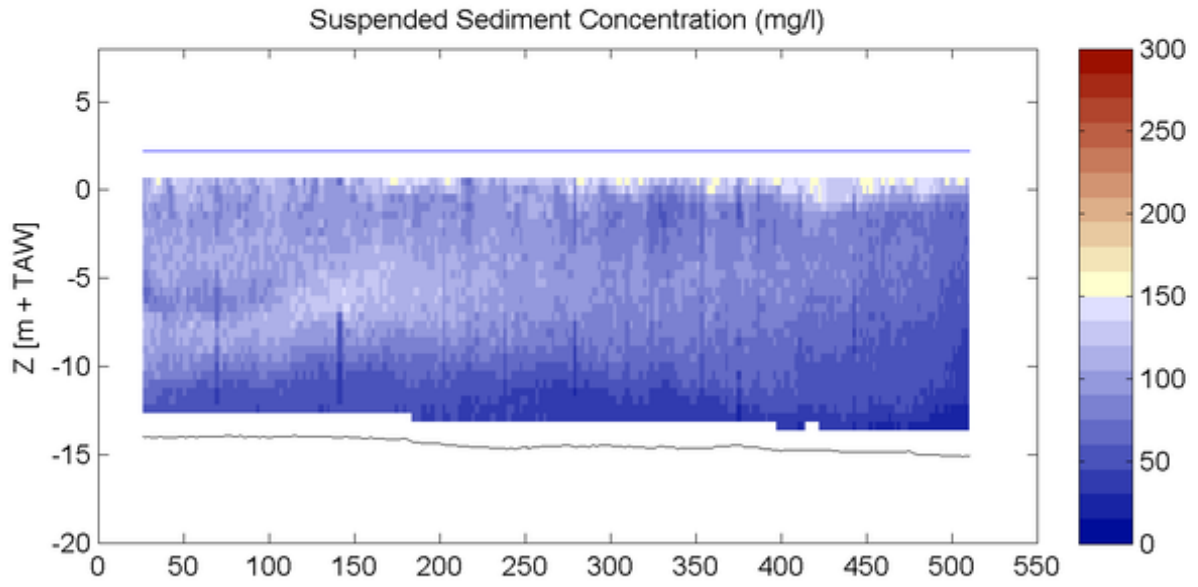
Data Processed by:

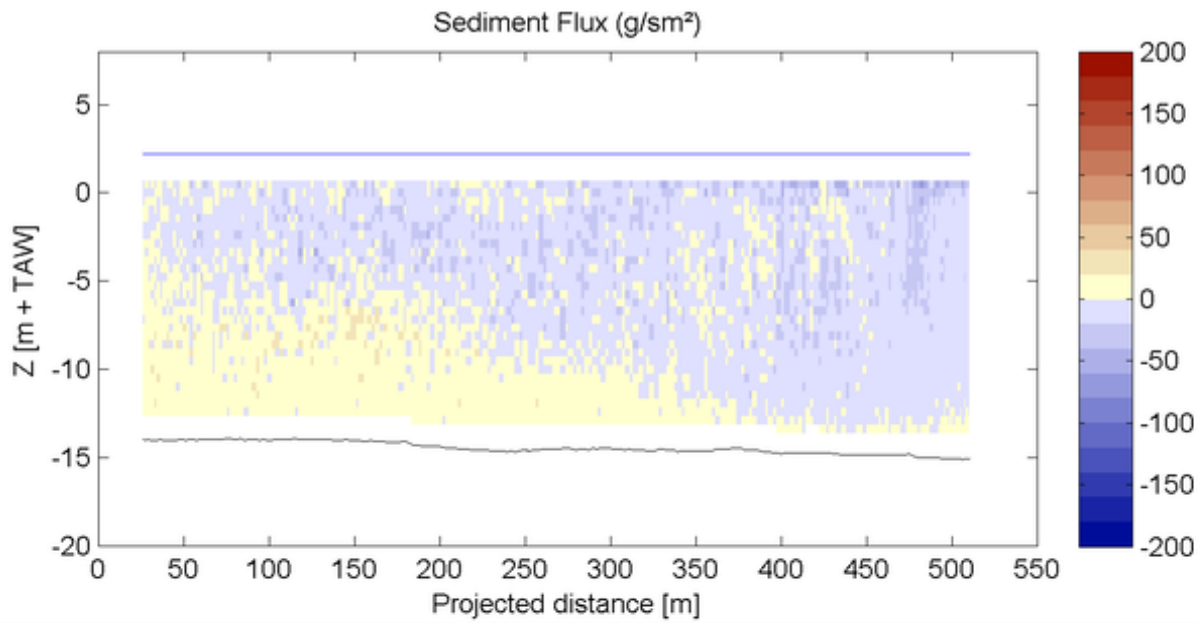
In association with :

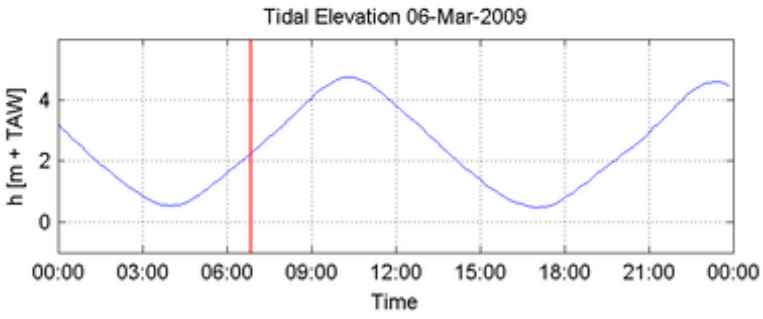
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3010DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:49 - 06:52

Time after HW [HH:MM]
-3:29

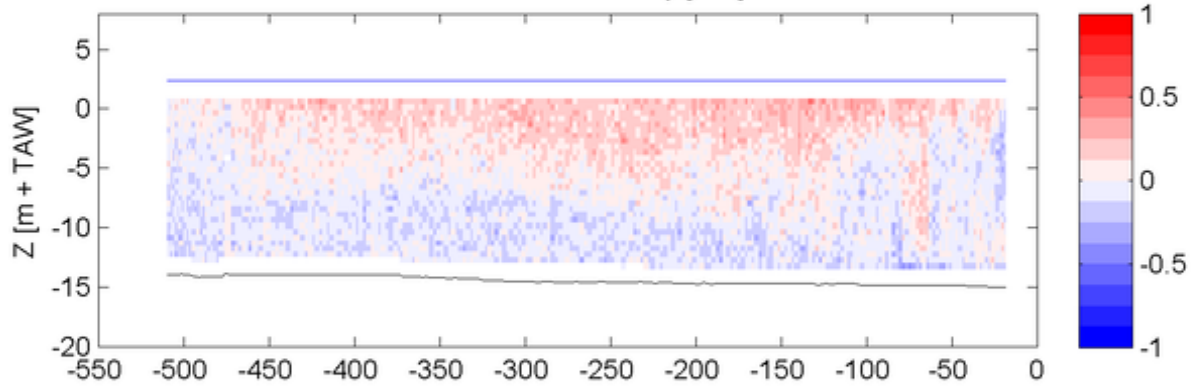
Data Processed by:

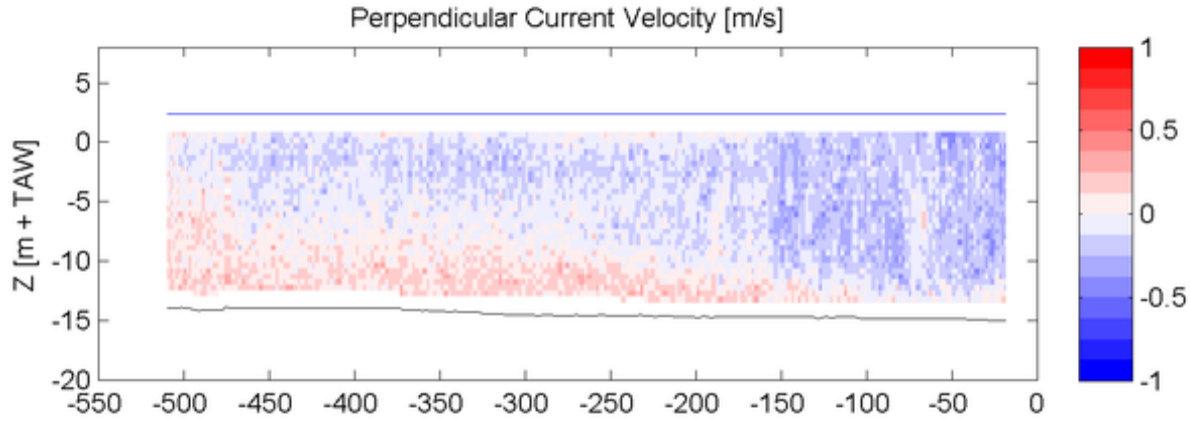
In association with :

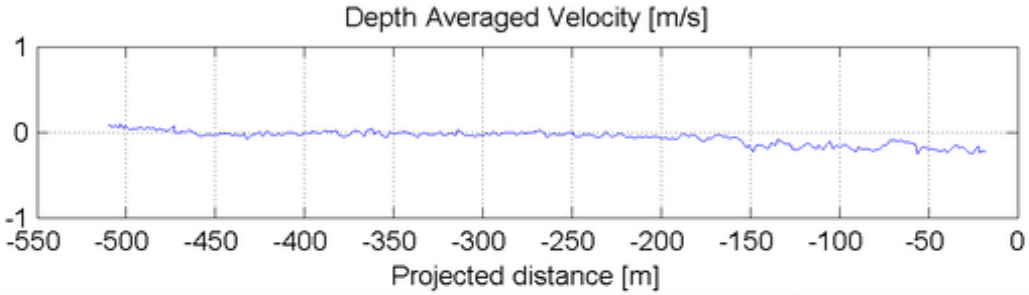
I/RA/11283/08.087/MSA

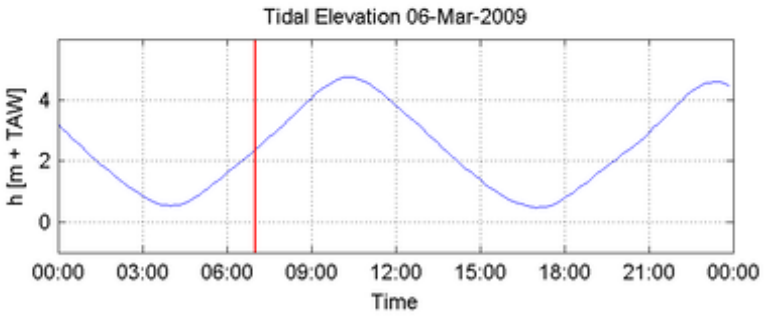
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3012DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:58 - 07:01

Time after HW [HH:MM]
-3:20

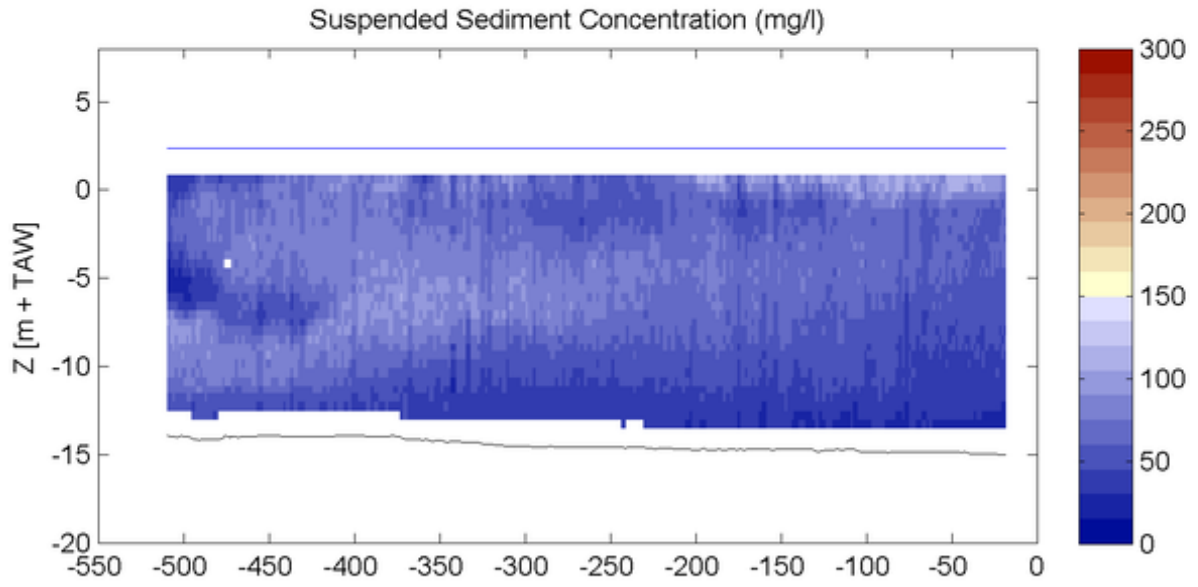
Data Processed by:

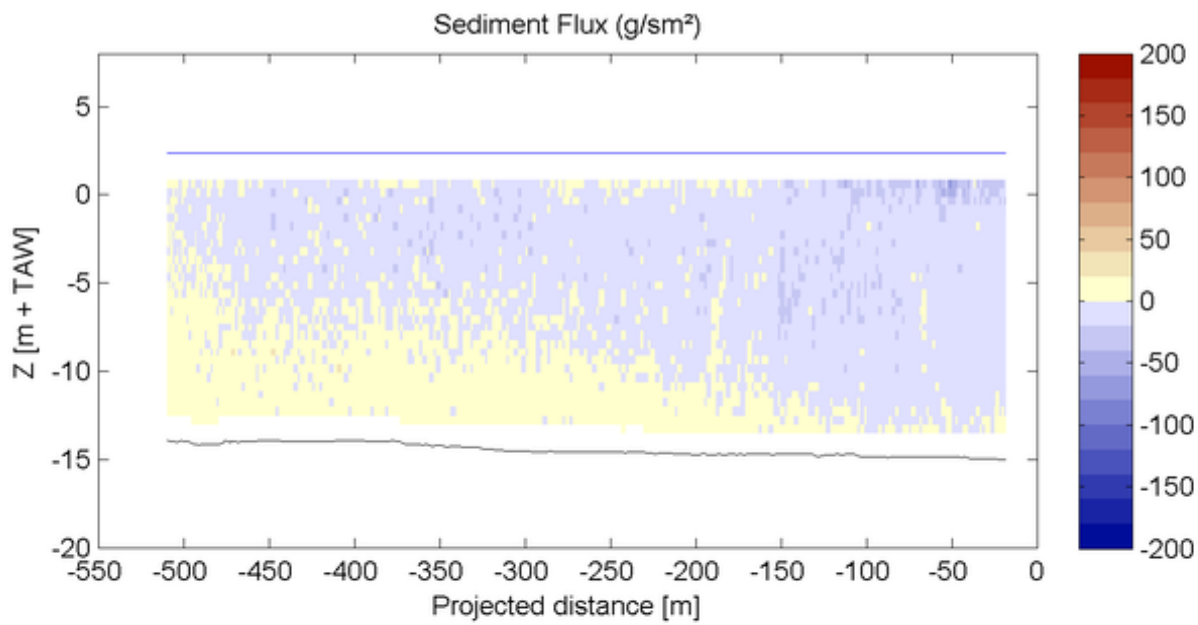
In association with :

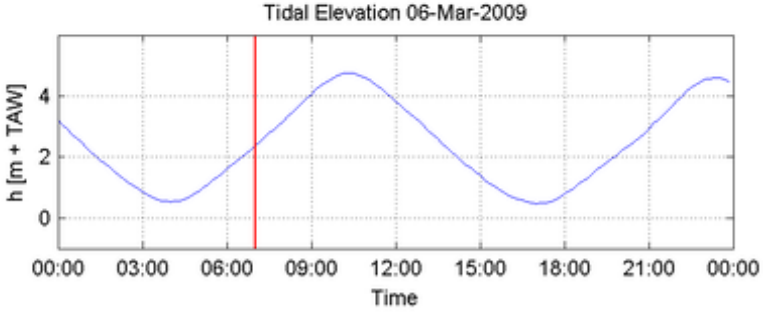
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3012DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
06:58 - 07:01

Time after HW [HH:MM]
-3:20

Data Processed by:

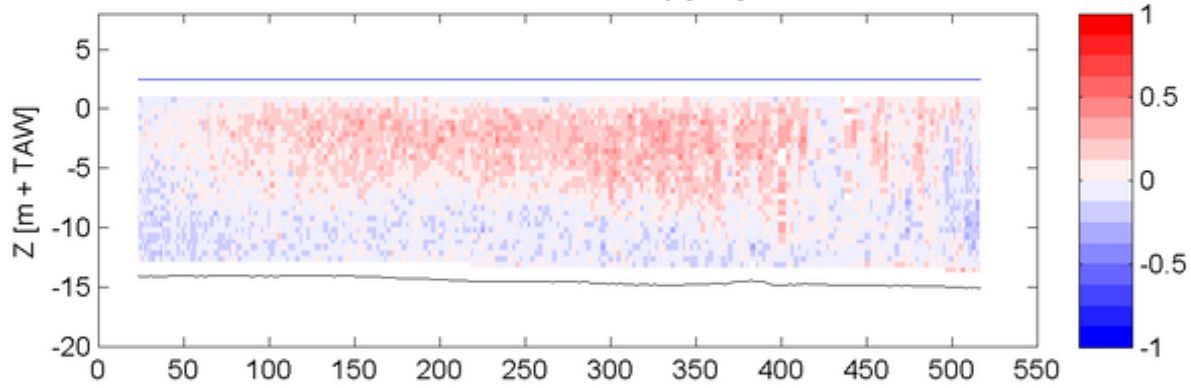
In association with :

I/RA/11283/08.087/MSA

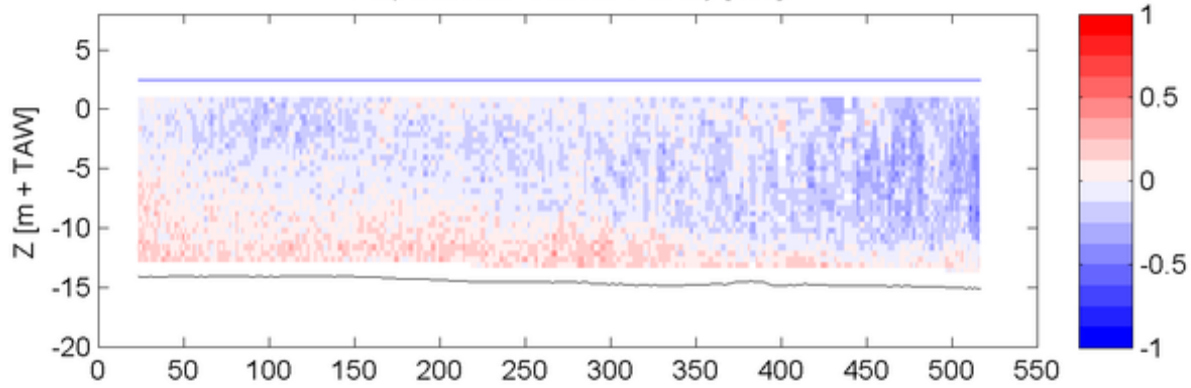
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3014DGDtlr_sub.csv	Location: Deurganckdok

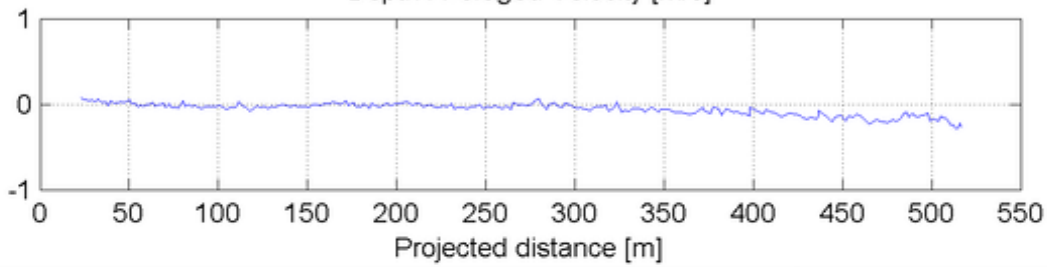
Parallel Current Velocity [m/s]

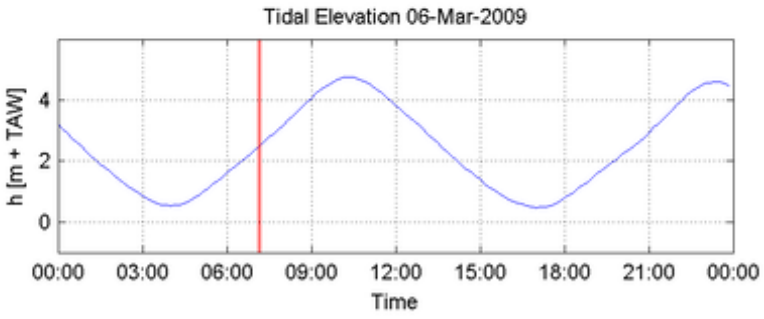


Perpendicular Current Velocity [m/s]



Depth Averaged Velocity [m/s]





HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
07:07 - 07:10

Time after HW [HH:MM]
-3:10

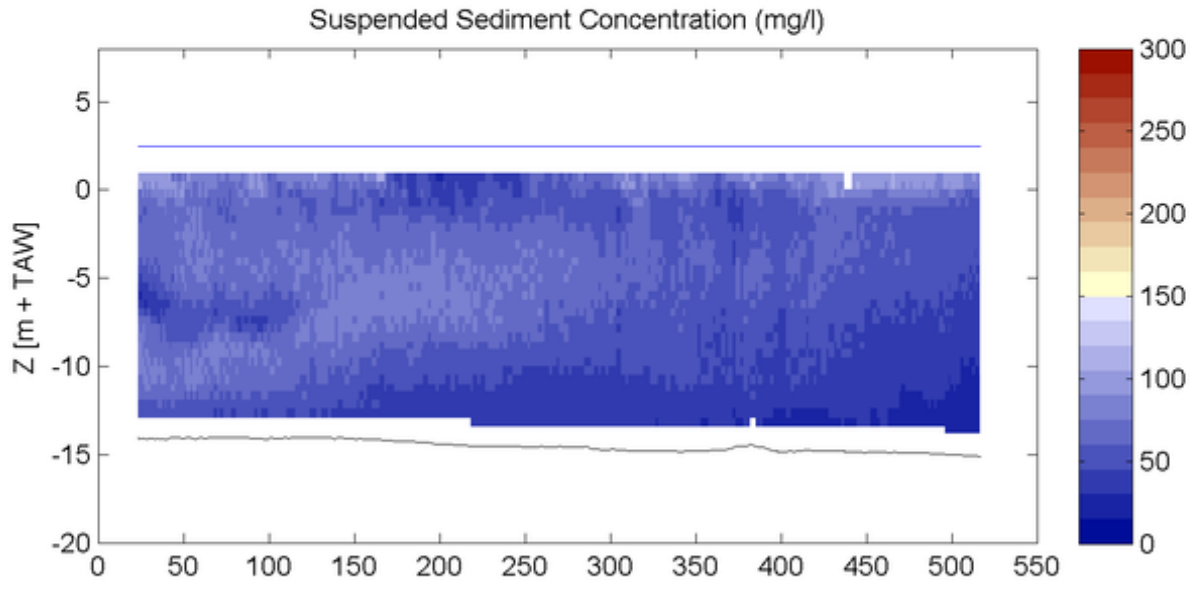
Data Processed by:

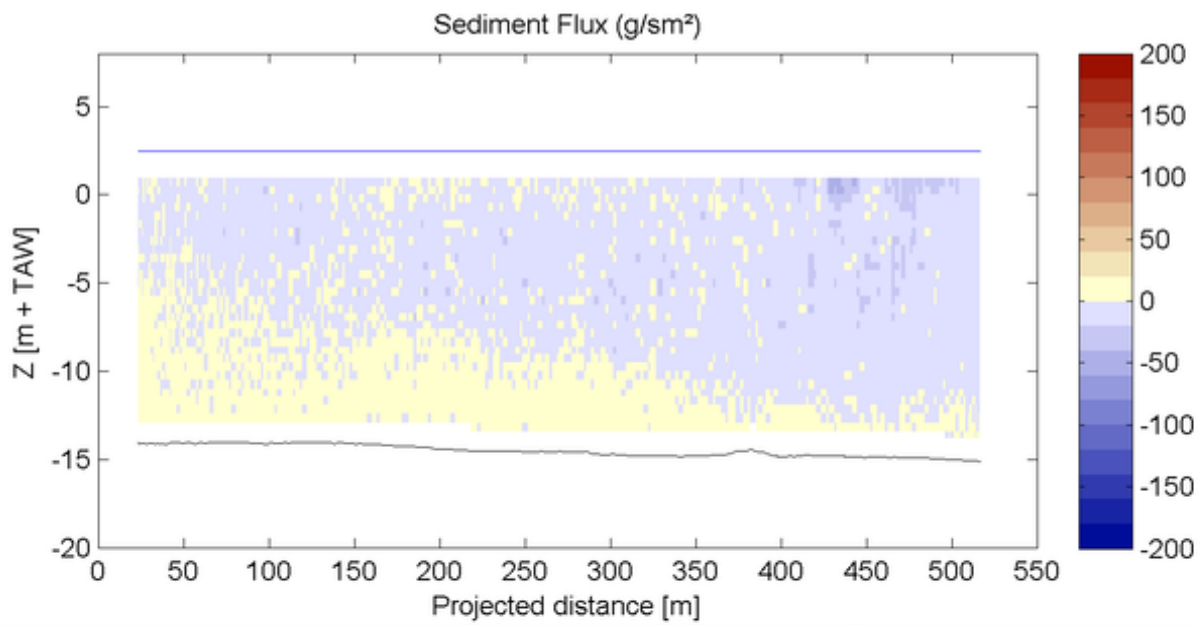
In association with :

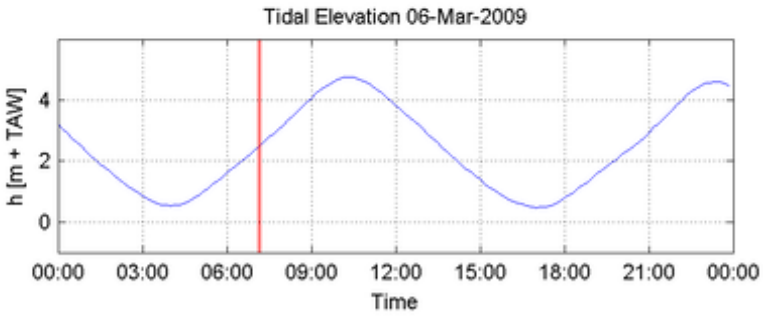
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3014DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
07:07 - 07:10

Time after HW [HH:MM]
-3:10

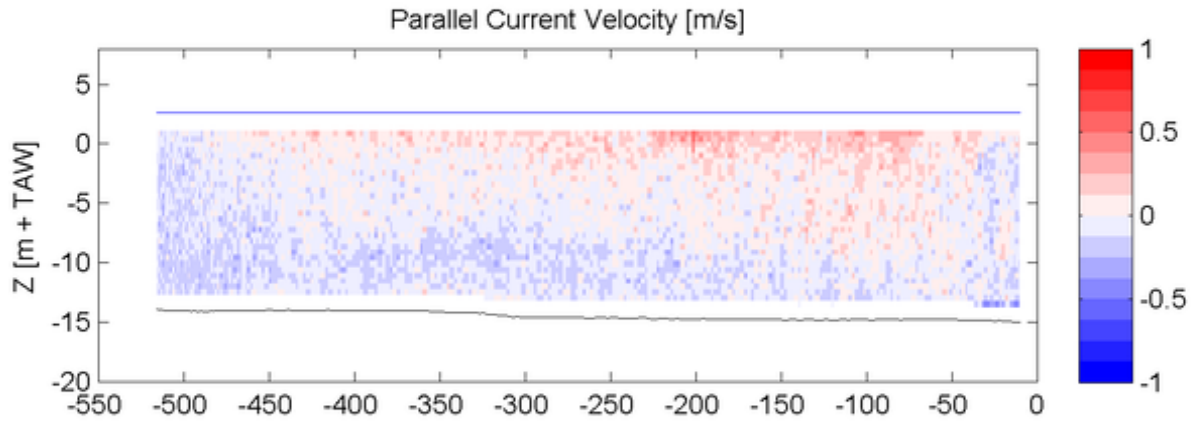
Data Processed by:

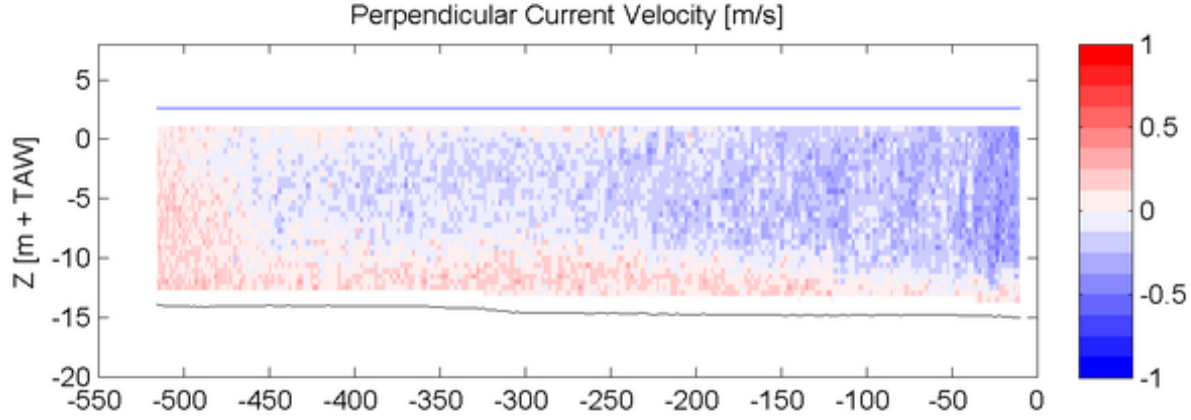
In association with :

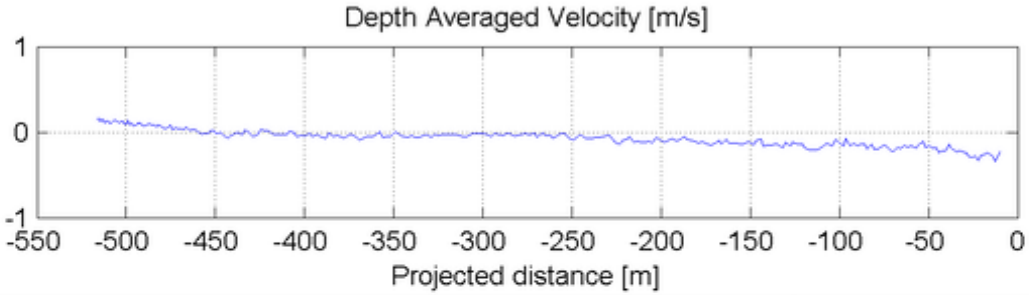
I/RA/11283/08.087/MSA

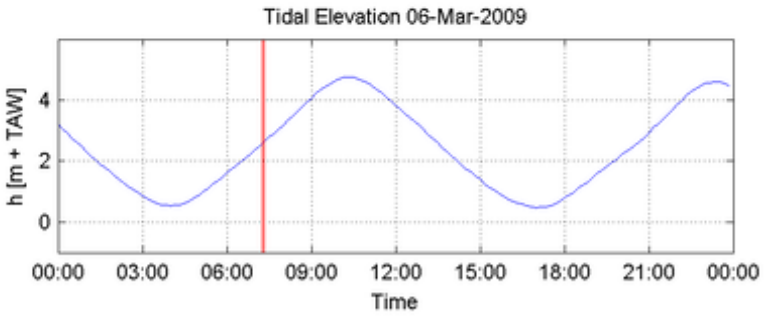
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3016DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
07:15 - 07:19

Time after HW [HH:MM]
-3:02

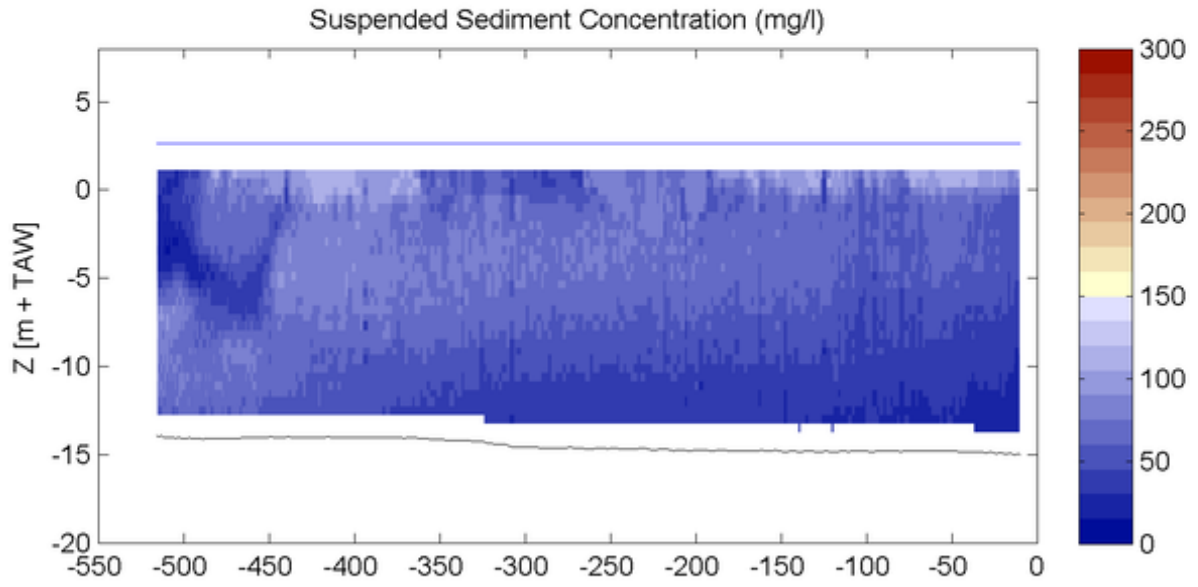
Data Processed by:

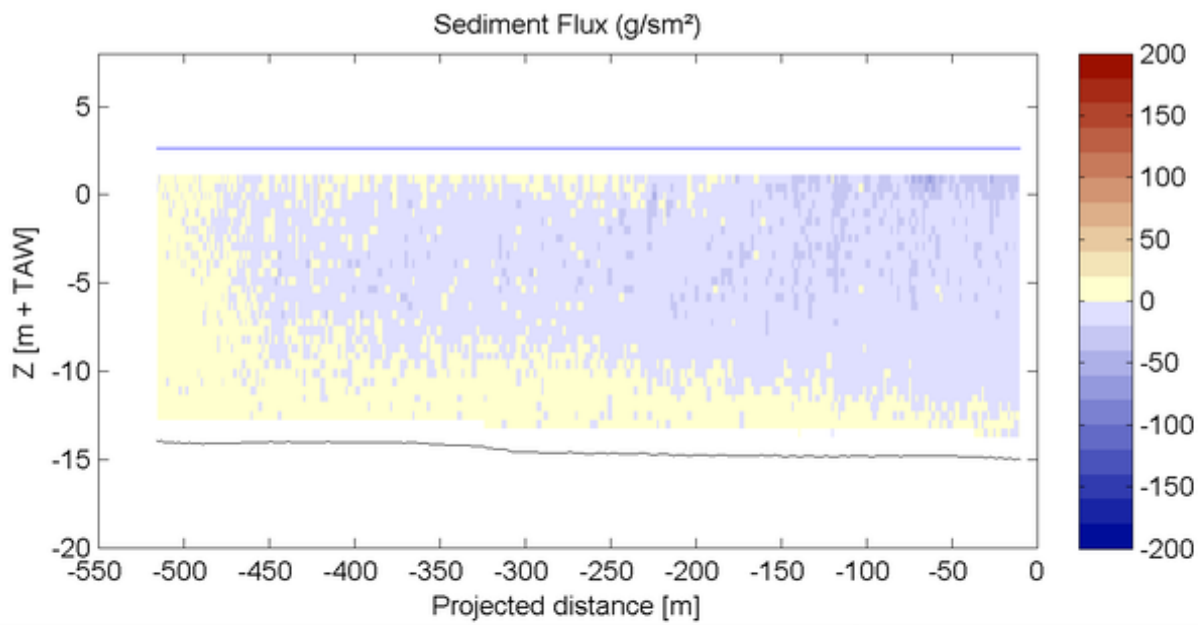
In association with :

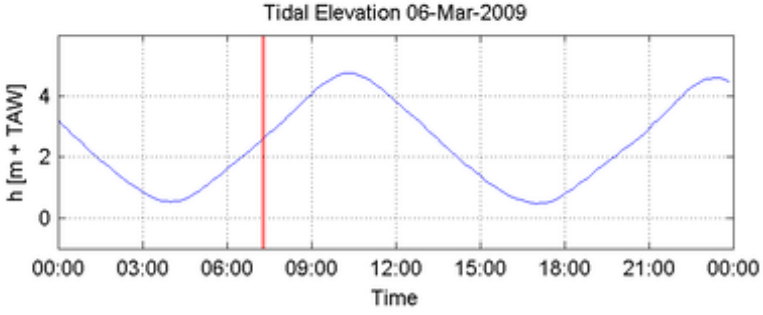
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3016DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
07:15 - 07:19

Time after HW [HH:MM]
-3:02

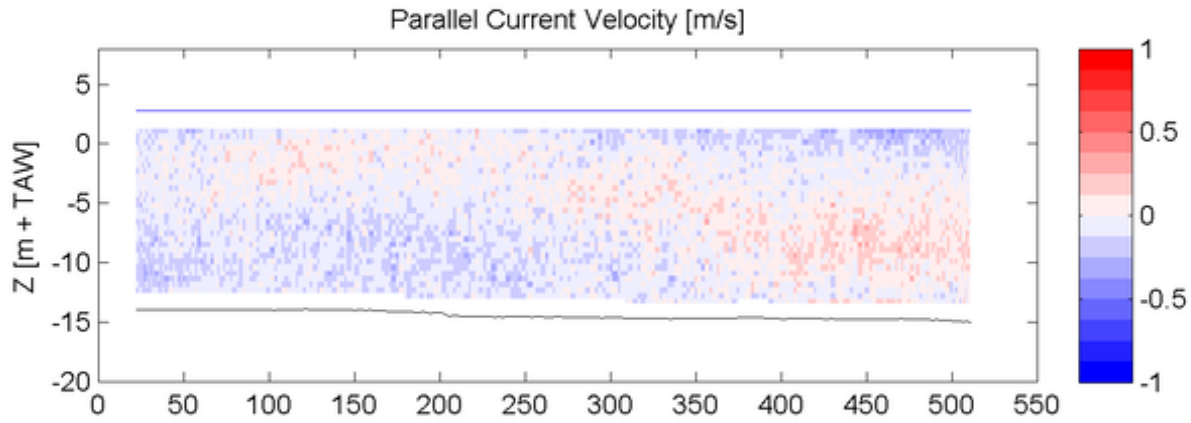
Data Processed by:

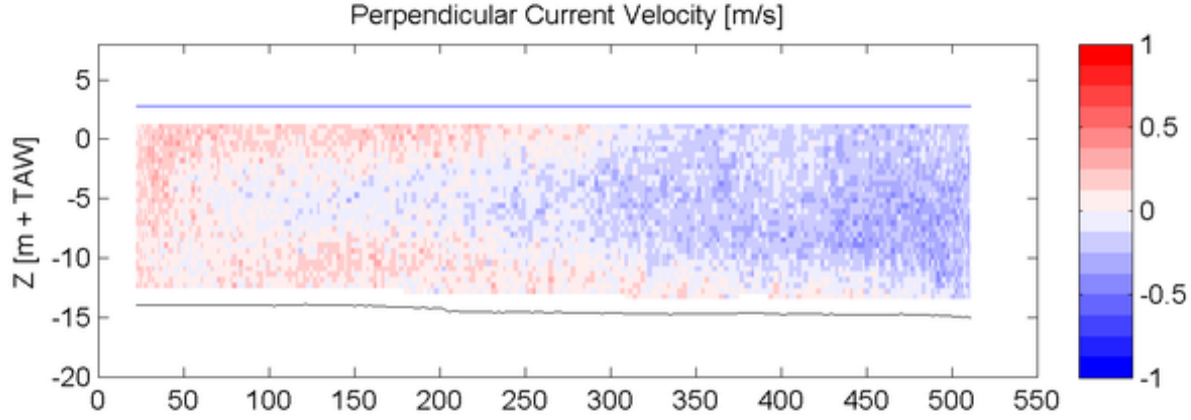
In association with :

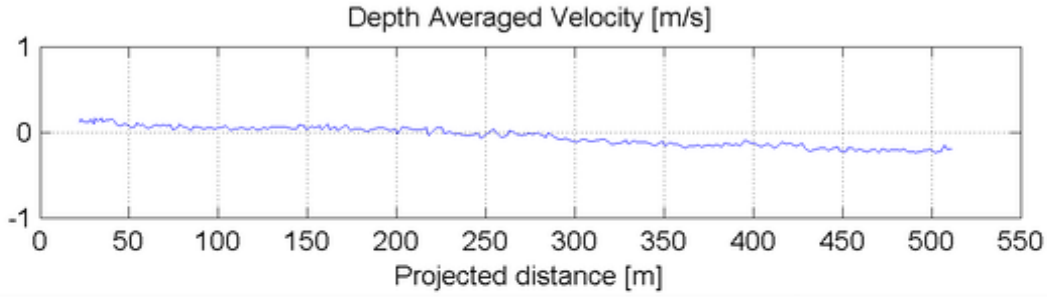
I/RA/11283/08.087/MSA

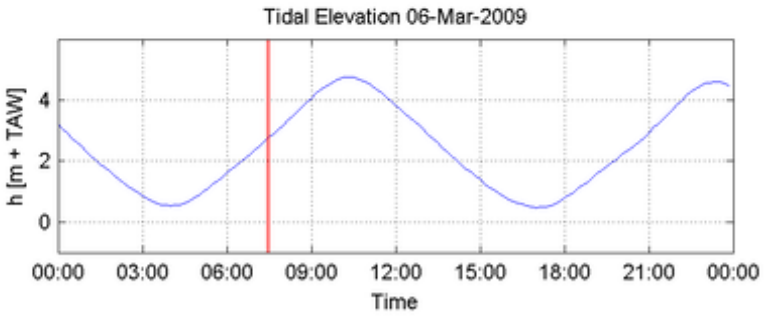
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3018DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
07:26 - 07:29

Time after HW [HH:MM]
-2:52

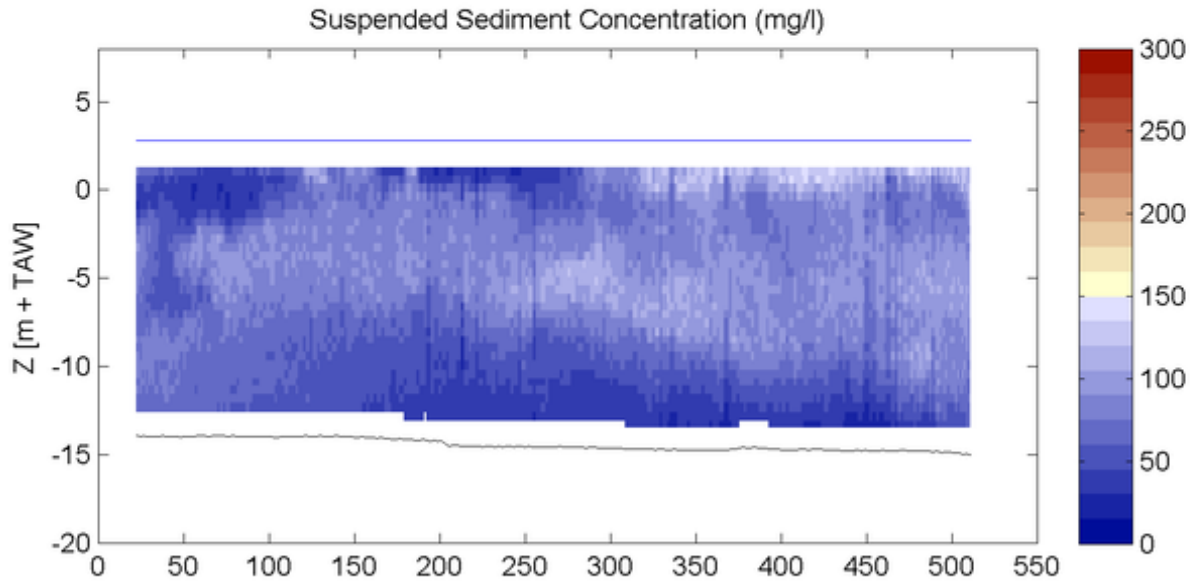
Data Processed by:

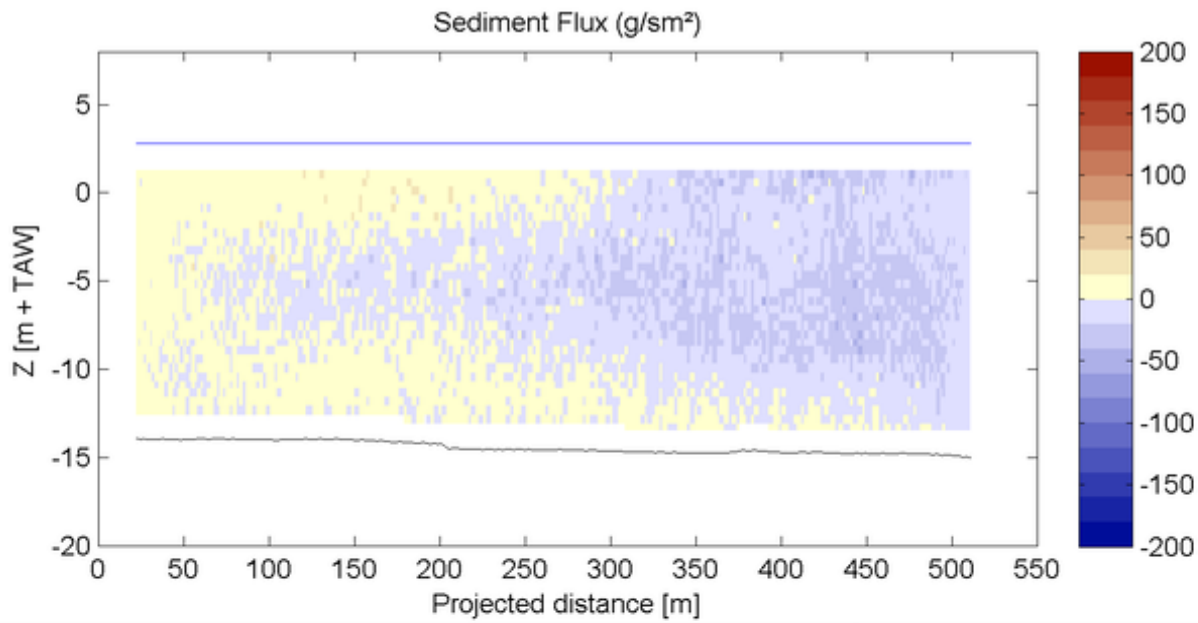
In association with :

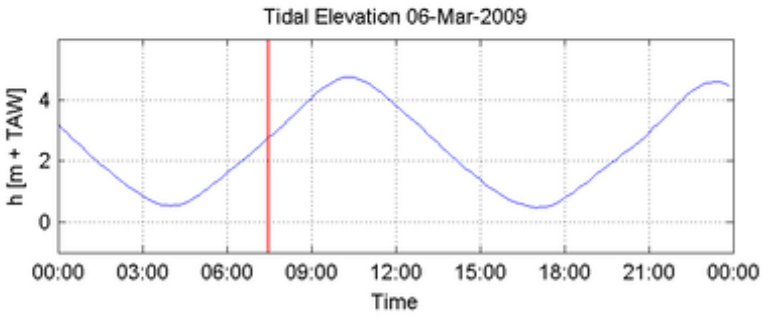
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3018DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
07:26 - 07:29

Time after HW [HH:MM]
-2:52

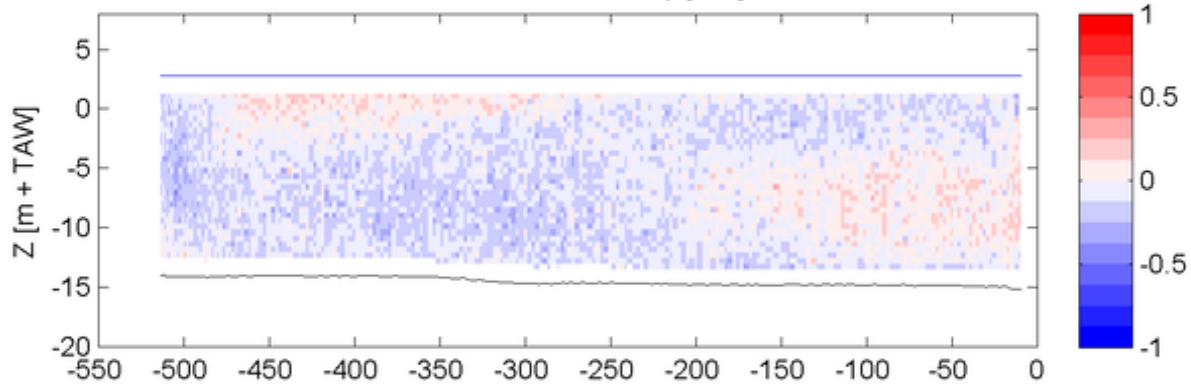
Data Processed by:

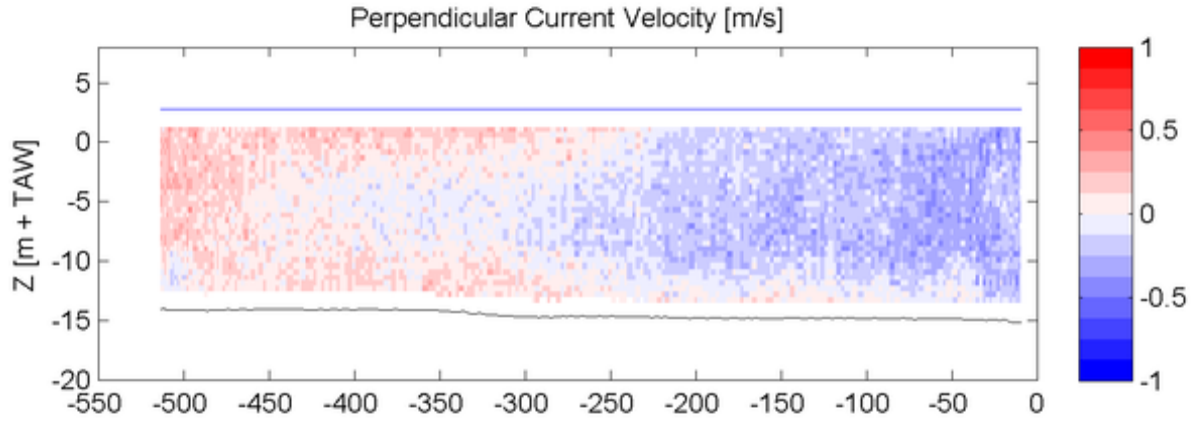
In association with :

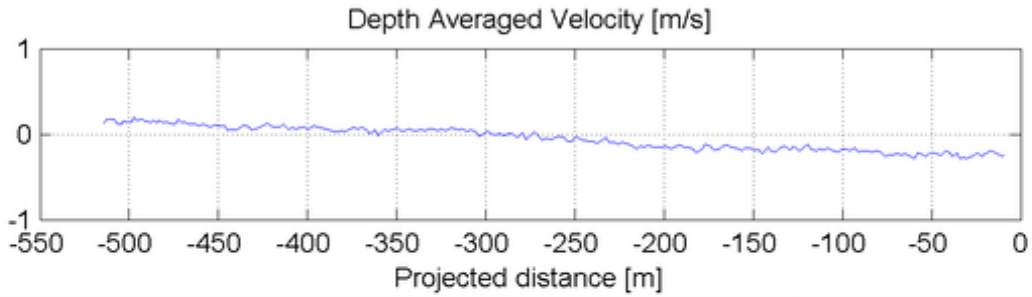
I/RA/11283/08.087/MSA

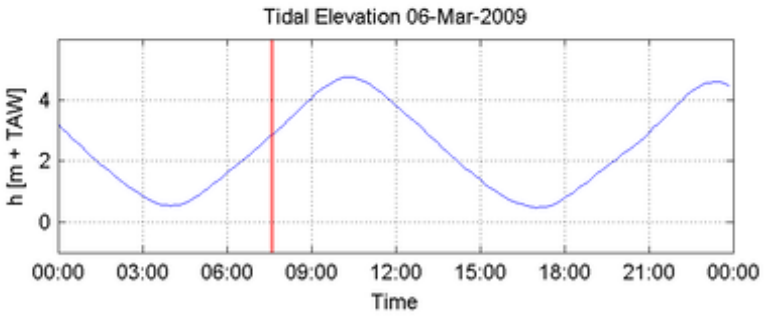
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3020DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
07:34 - 07:37

Time after HW [HH:MM]
-2:43

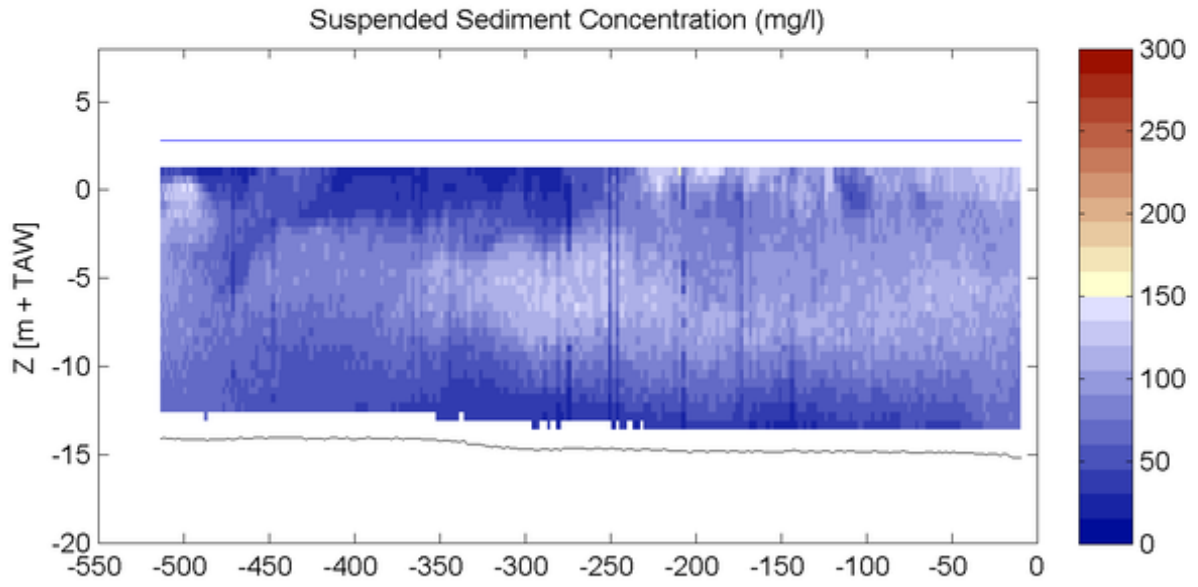
Data Processed by:

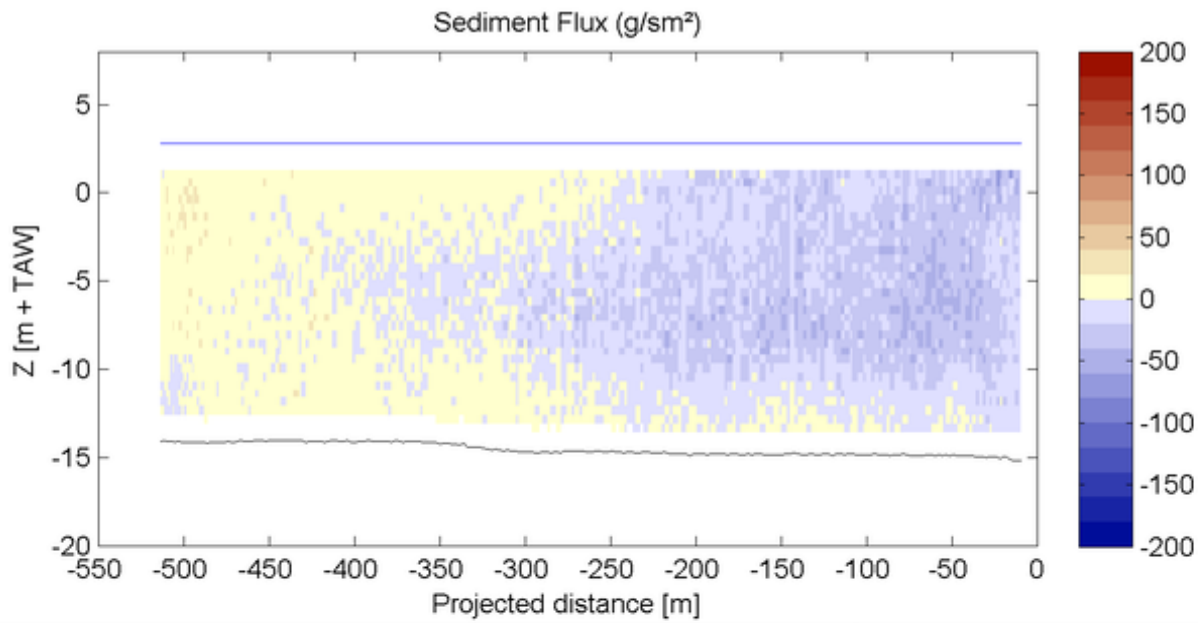
In association with :

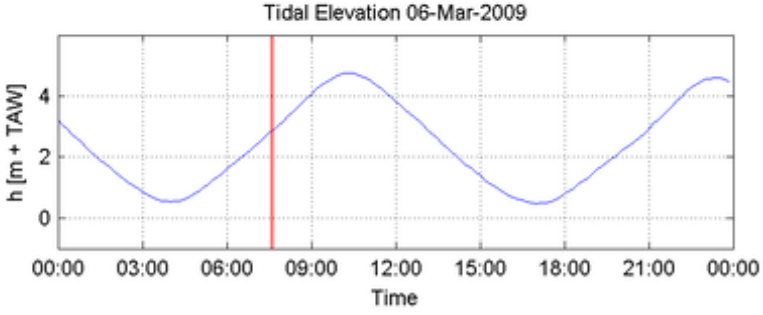
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3020DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

07:34 - 07:37

Time after HW [HH:MM]

-2:43

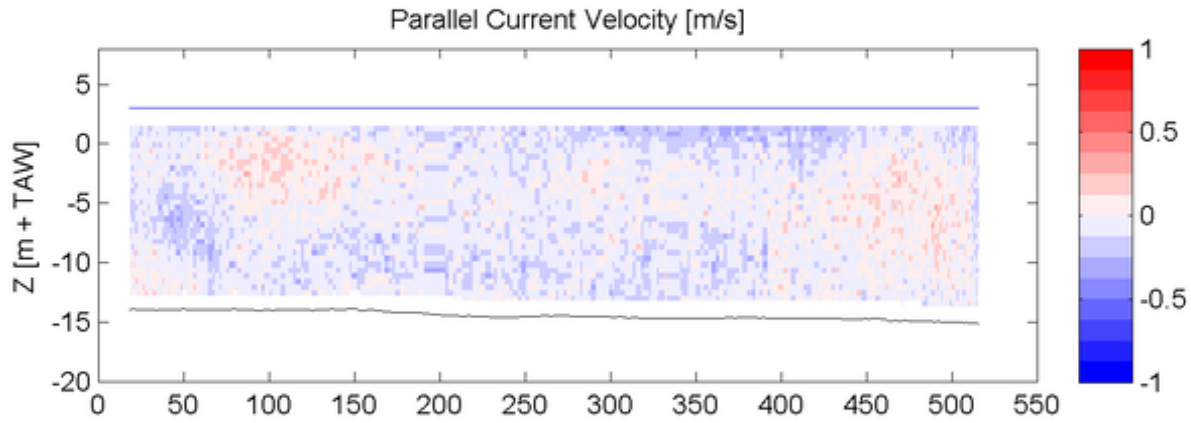
Data Processed by:

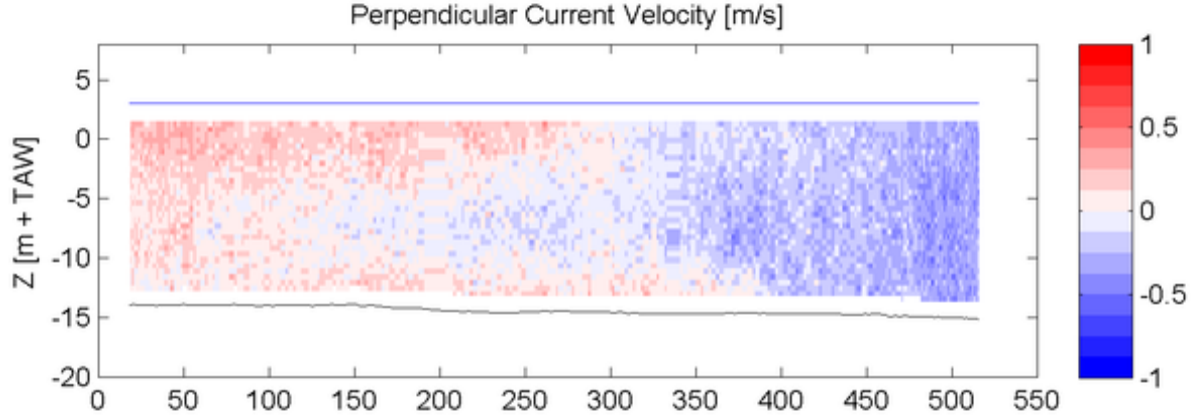
In association with :

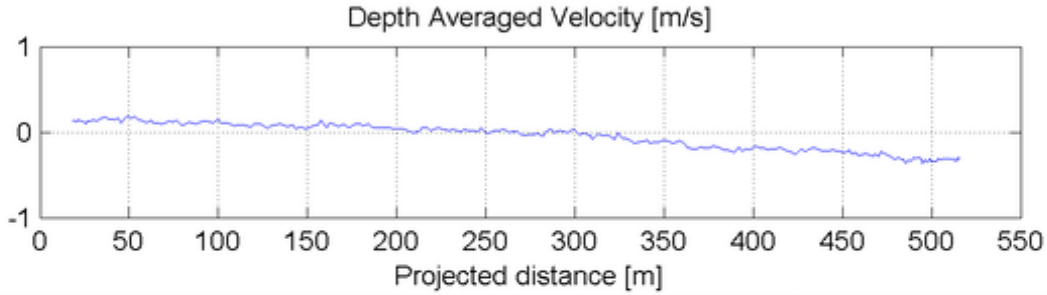
I/RA/11283/08.087/MSA

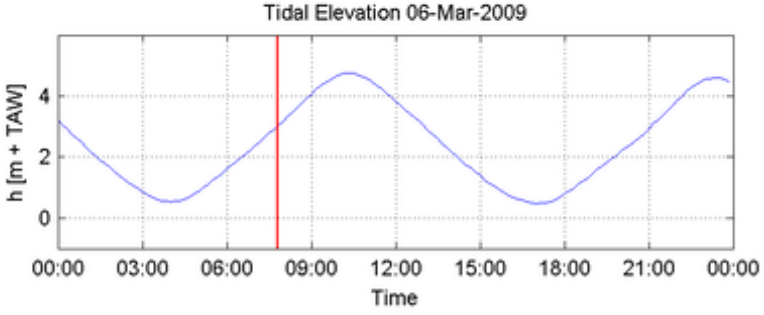
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3022DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
07:45 - 07:48

Time after HW [HH:MM]
-2:32

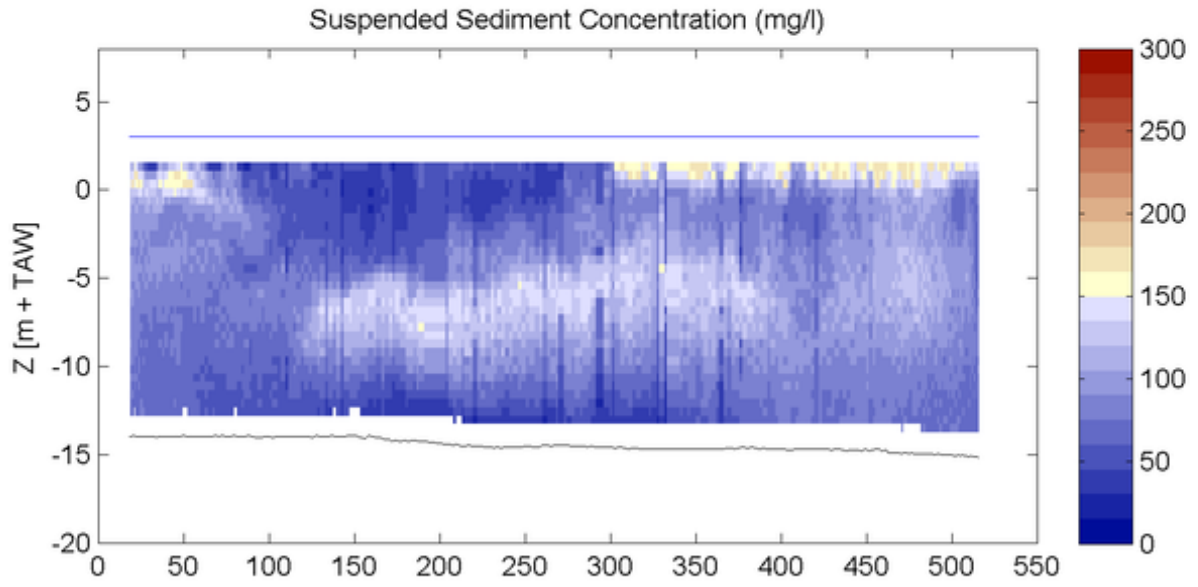
Data Processed by:

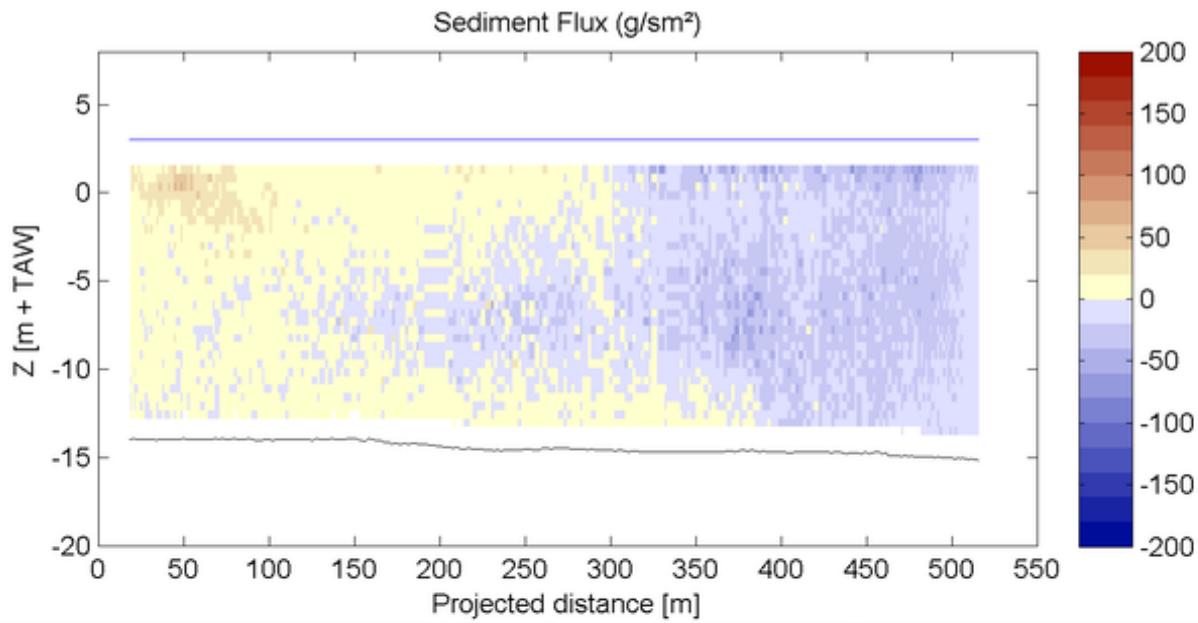
In association with :

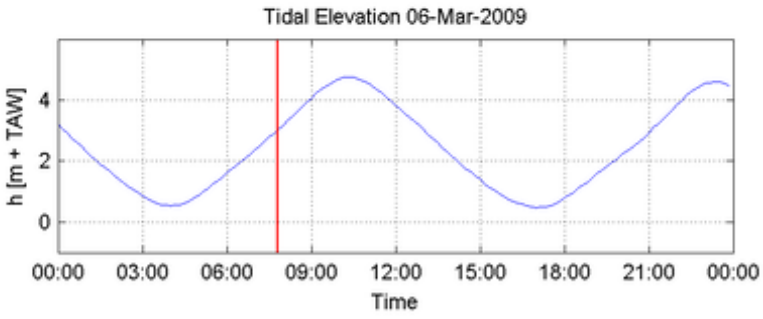
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3022DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
07:45 - 07:48

Time after HW [HH:MM]
-2:32

Data Processed by:

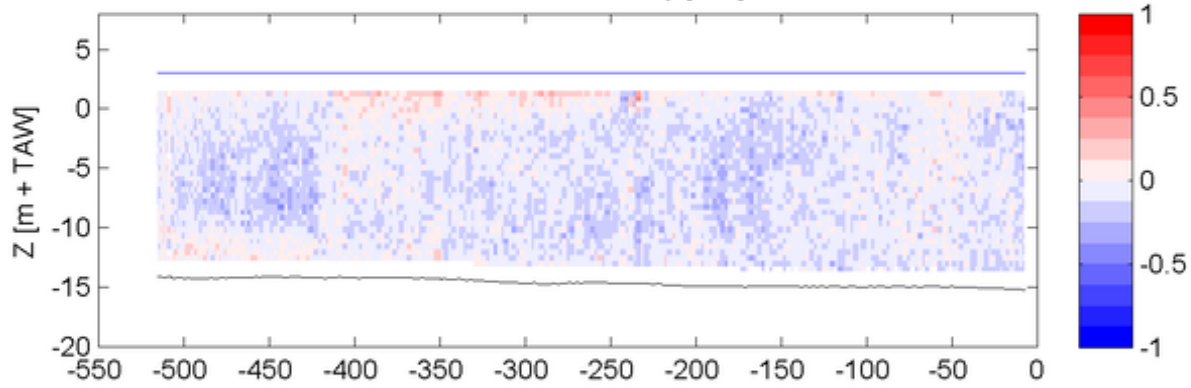
In association with :

I/RA/11283/08.087/MSA

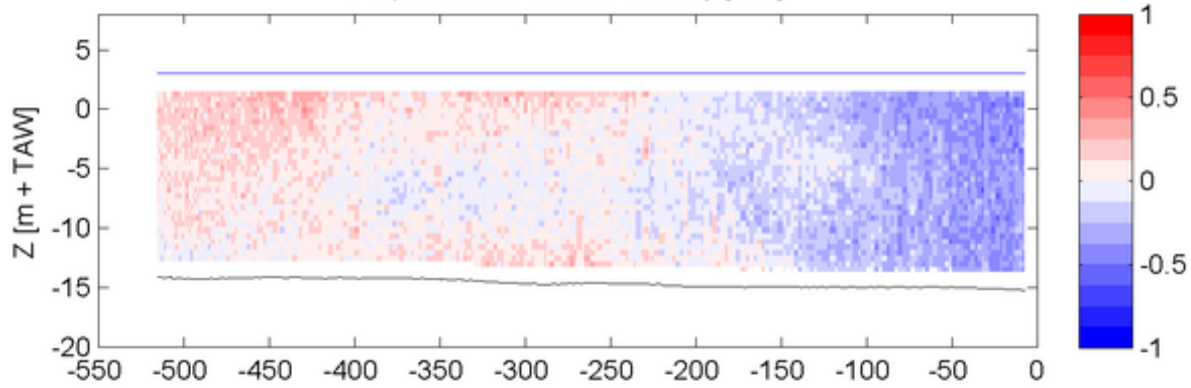
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3024DGDtrl_sub.csv	Location: Deurganckdok

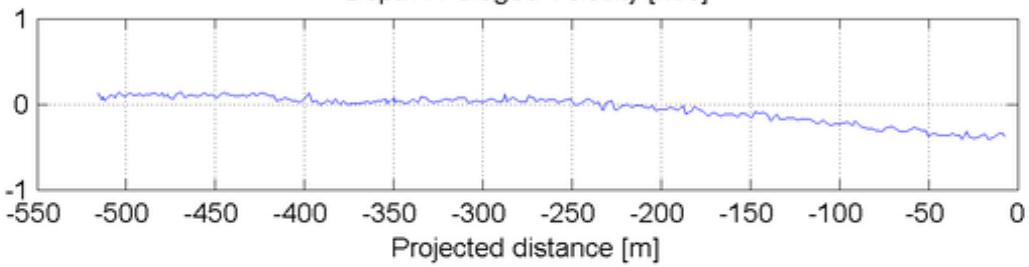
Parallel Current Velocity [m/s]



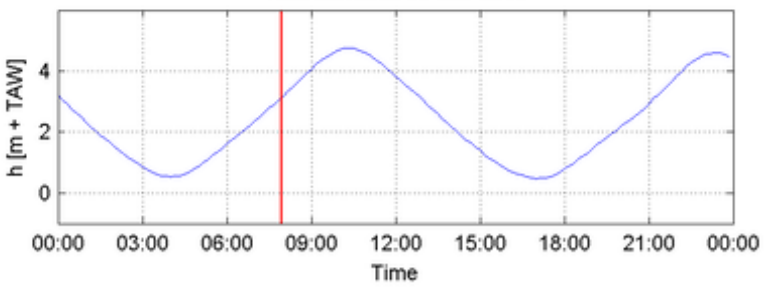
Perpendicular Current Velocity [m/s]



Depth Averaged Velocity [m/s]



Tidal Elevation 06-Mar-2009



HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
07:54 - 07:57

Time after HW [HH:MM]
-2:23

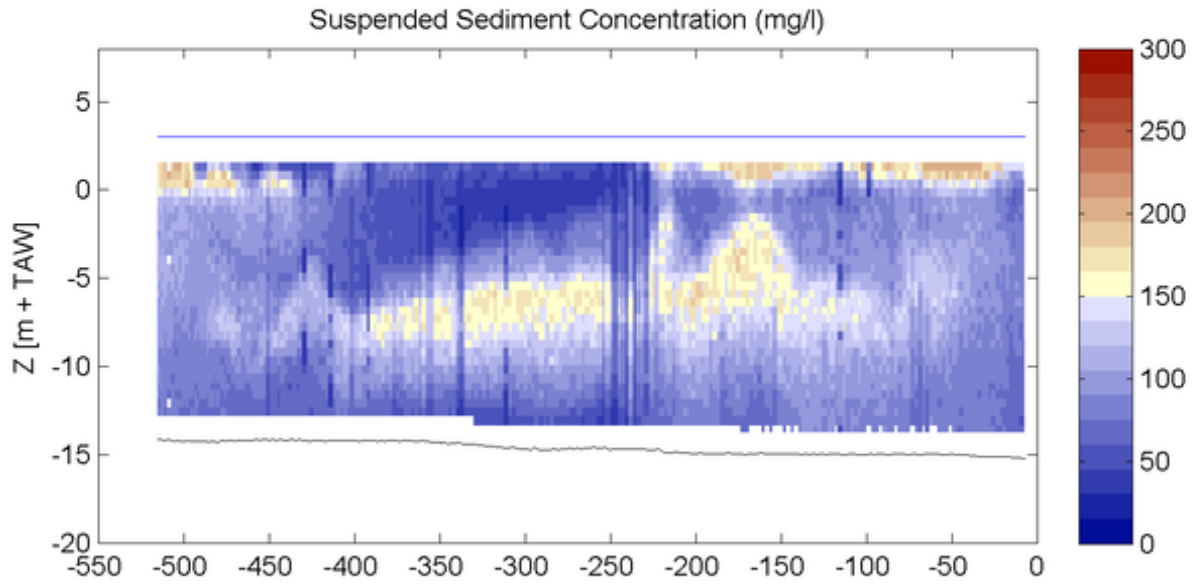
Data Processed by:

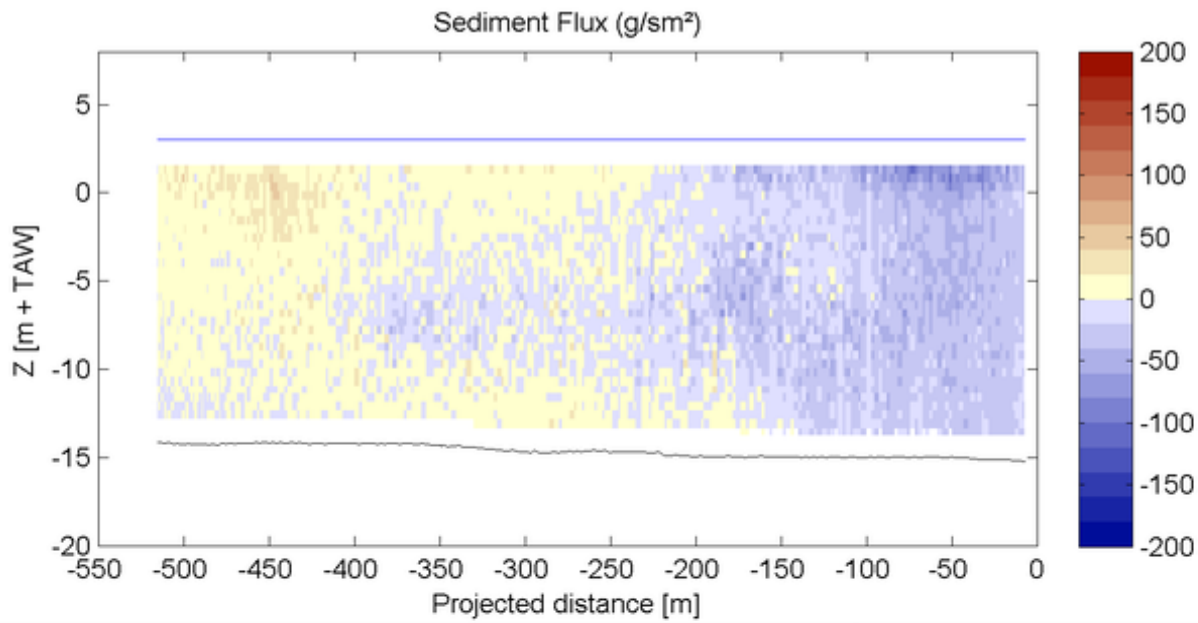
In association with :

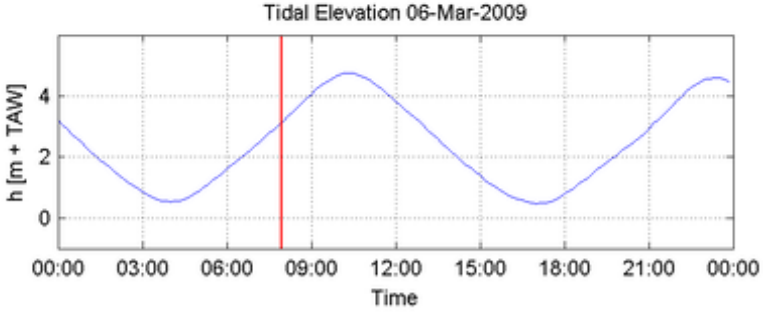
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3024DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

07:54 - 07:57

Time after HW [HH:MM]

-2:23

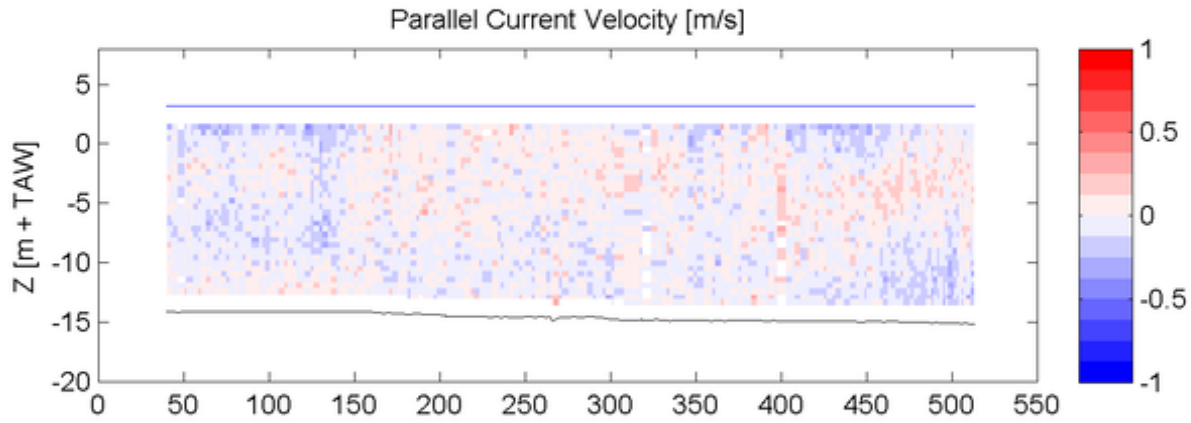
Data Processed by:

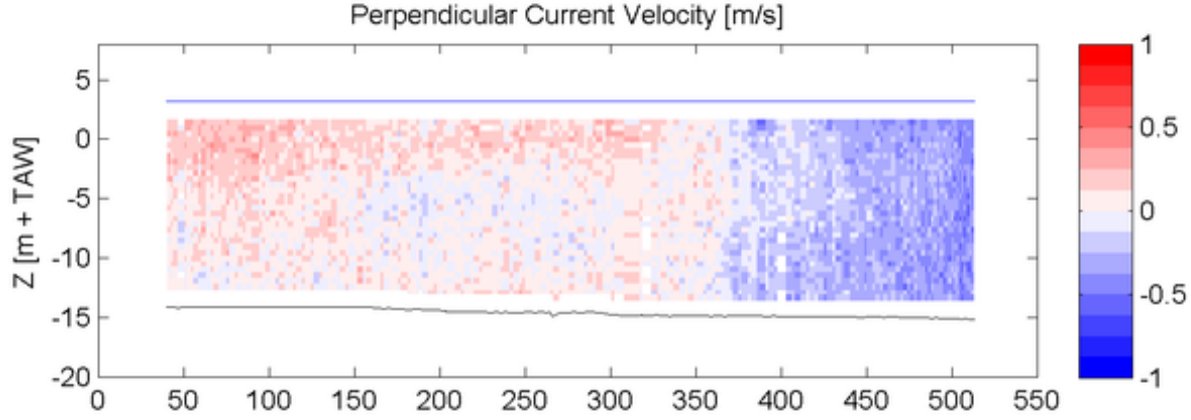
In association with :

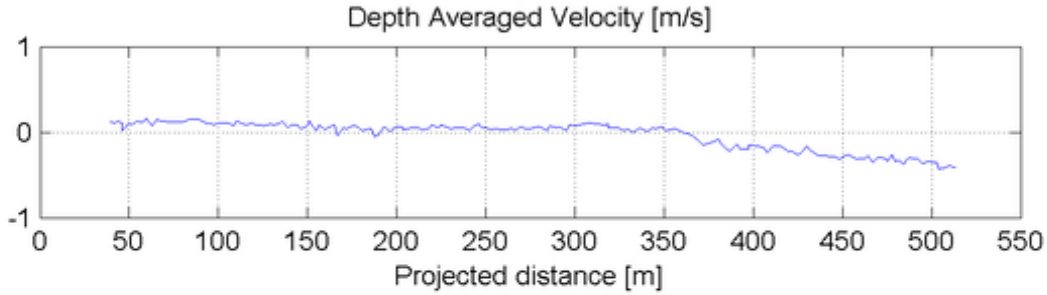
I/RA/11283/08.087/MSA

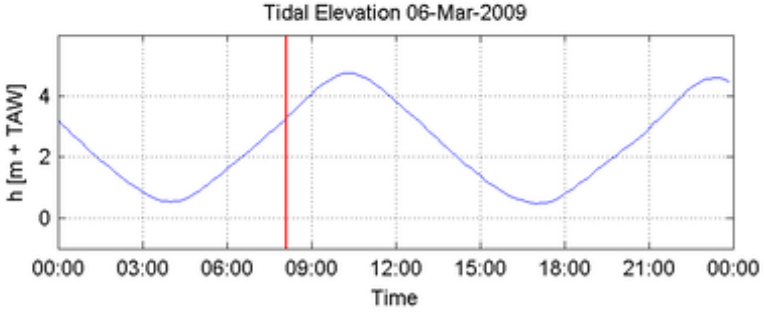
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3026DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
08:04 - 08:06

Time after HW [HH:MM]
-2:14

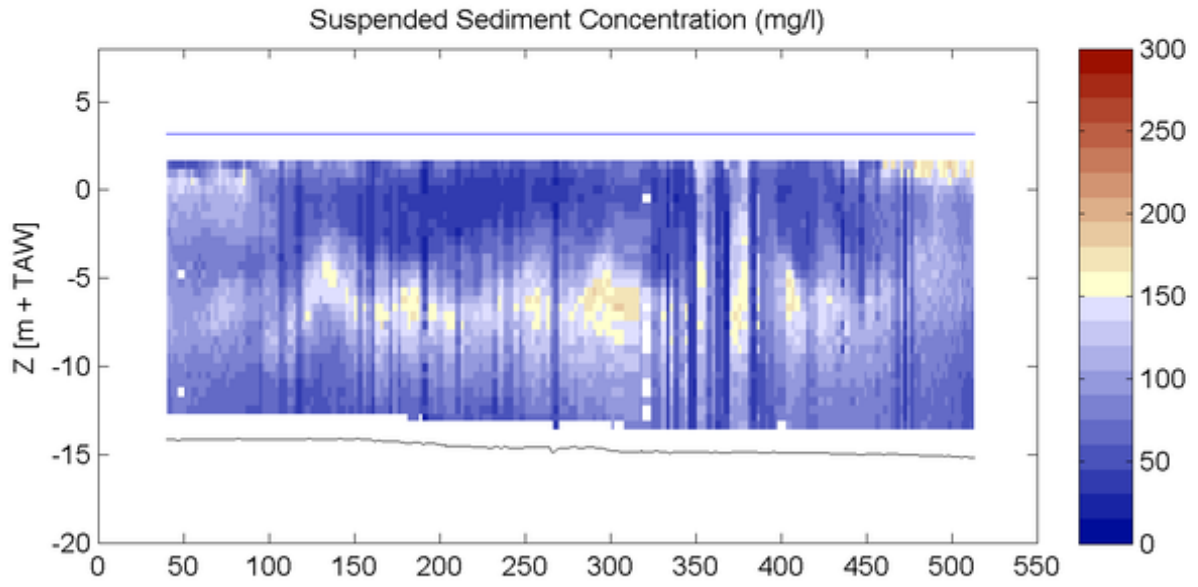
Data Processed by:

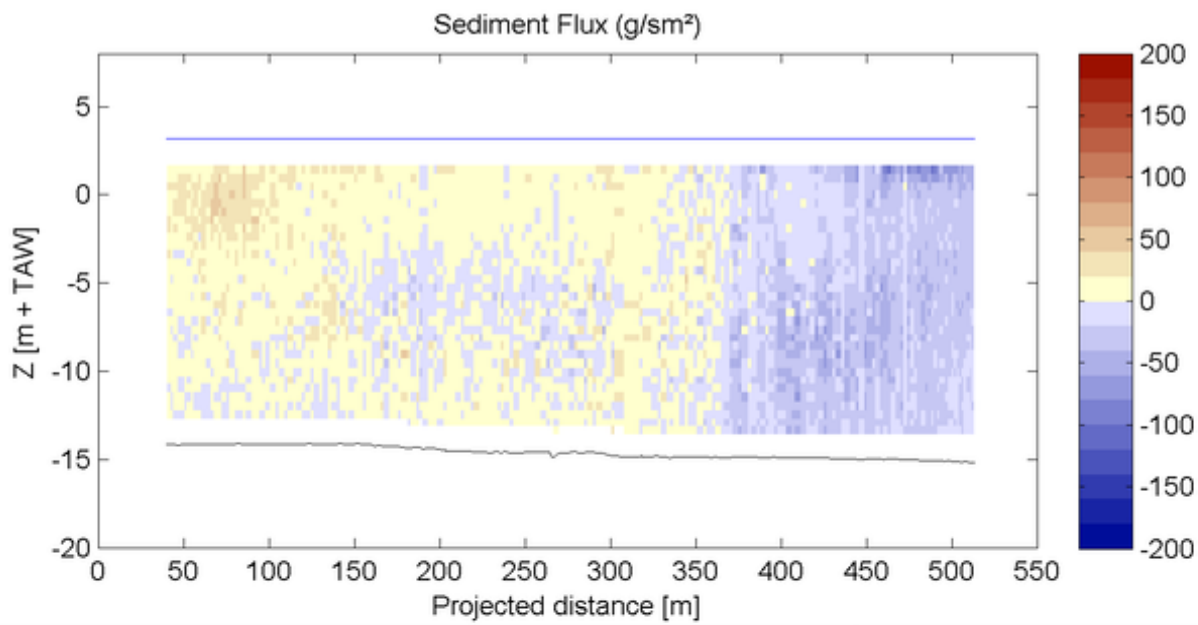
In association with :

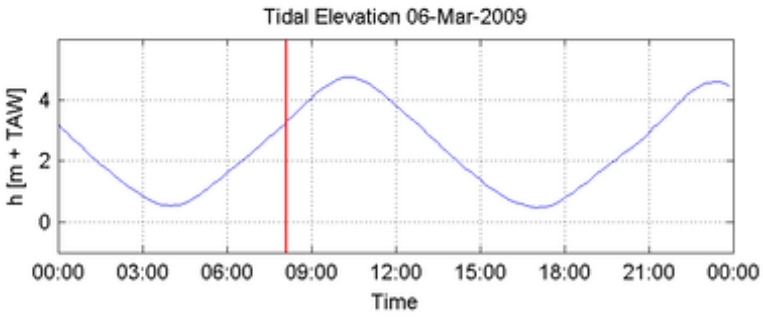
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3026DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
08:04 - 08:06

Time after HW [HH:MM]
-2:14

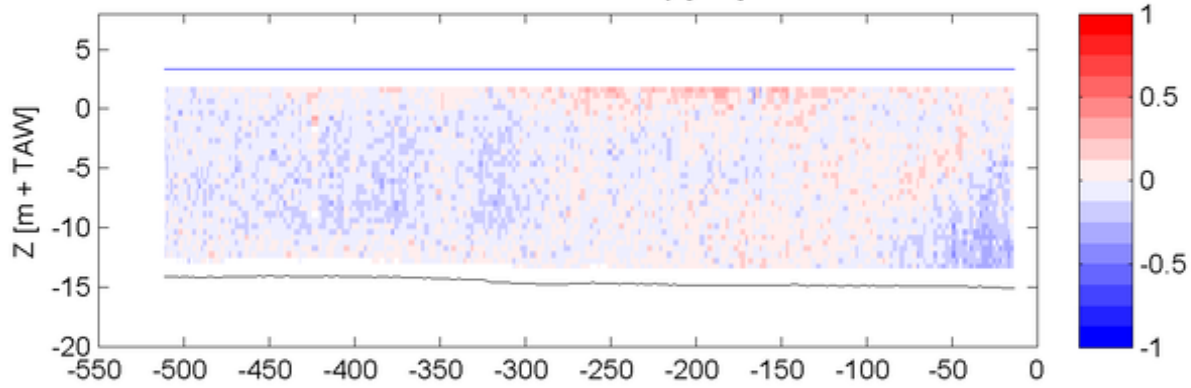
Data Processed by:

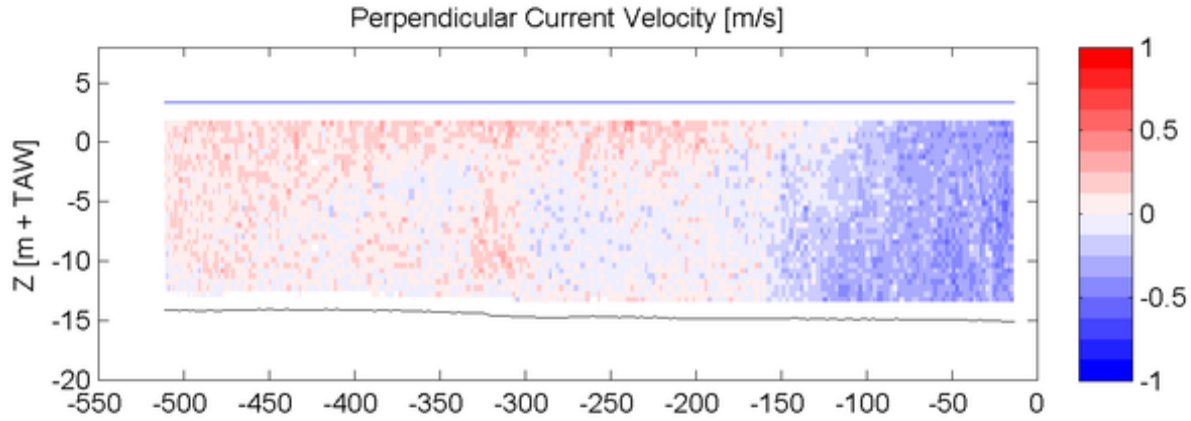
In association with :

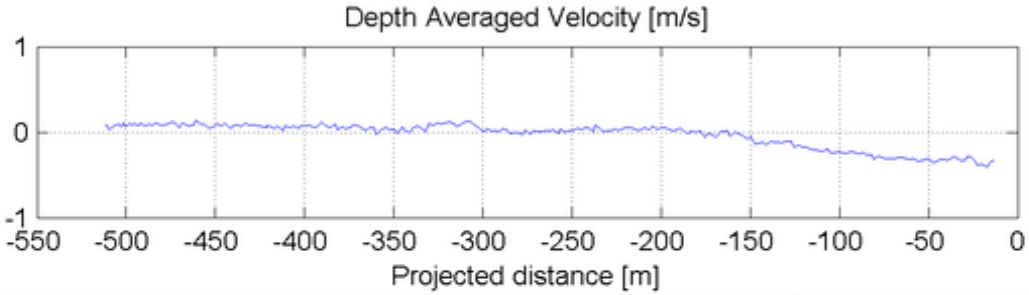
I/RA/11283/08.087/MSA

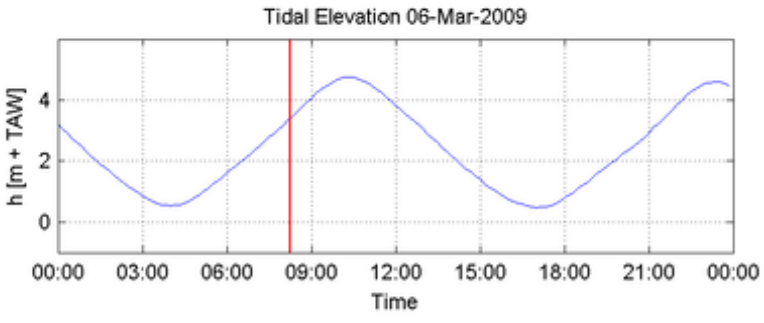
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3028DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
08:13 - 08:16

Time after HW [HH:MM]
-2:05

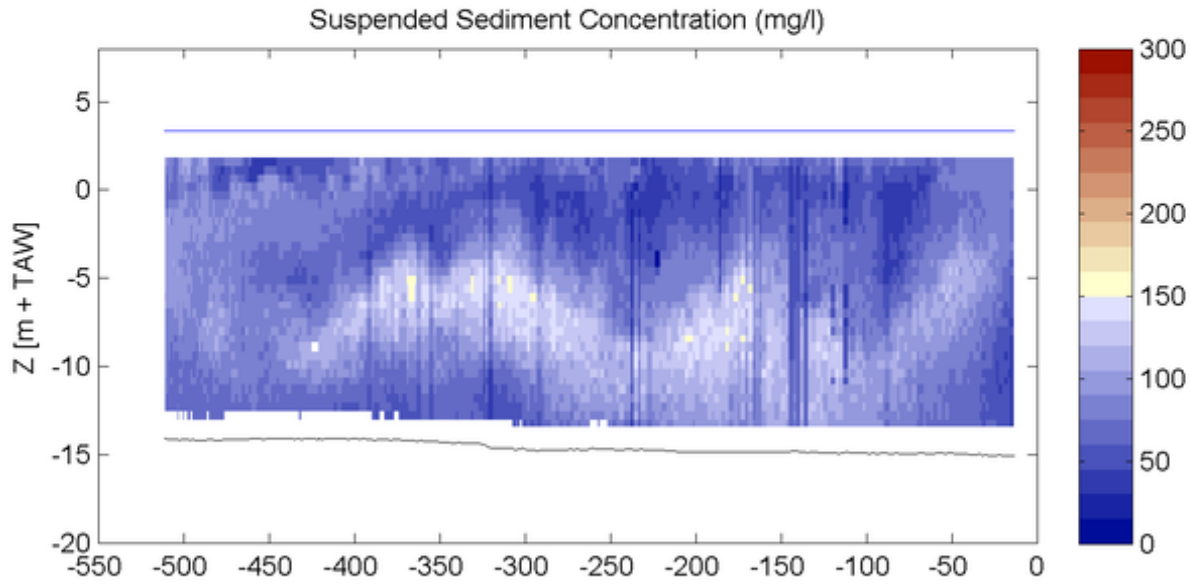
Data Processed by:

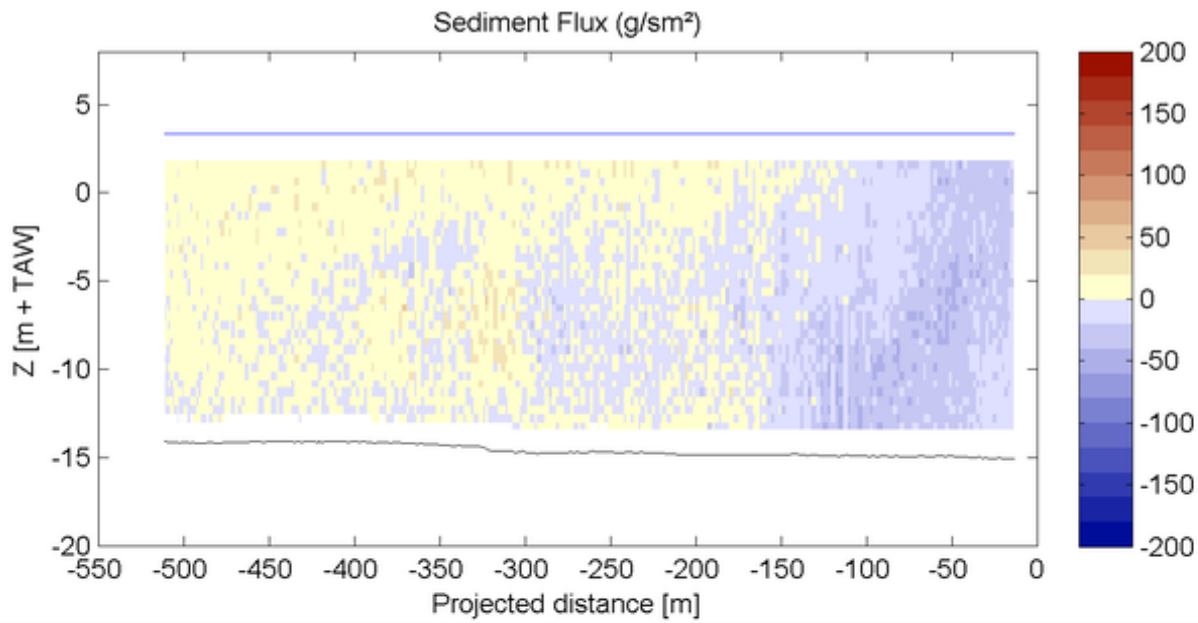
In association with :

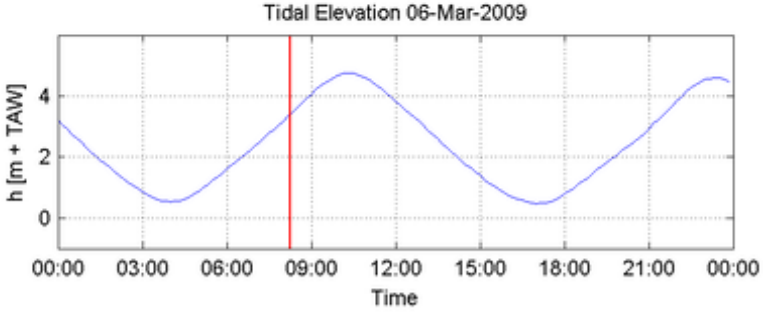
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3028DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

08:13 - 08:16

Time after HW [HH:MM]

-2:05

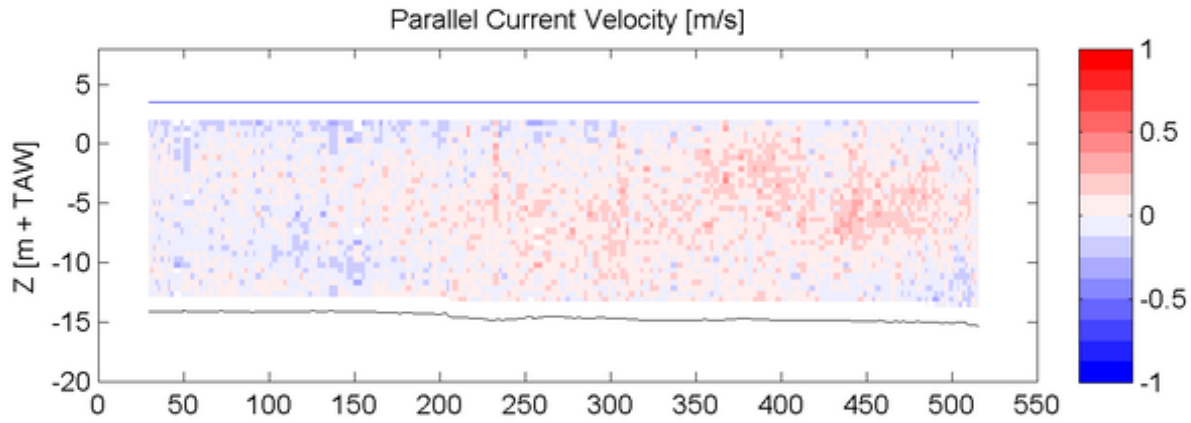
Data Processed by:

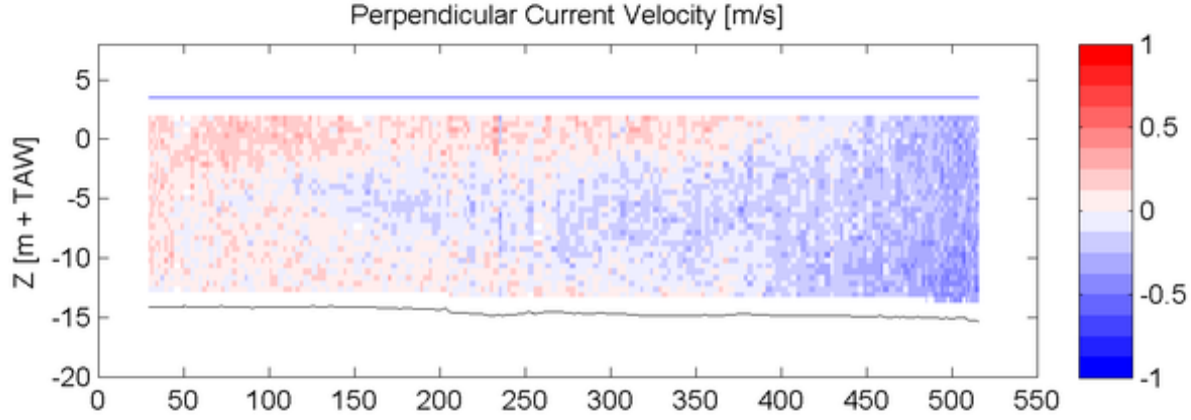
In association with :

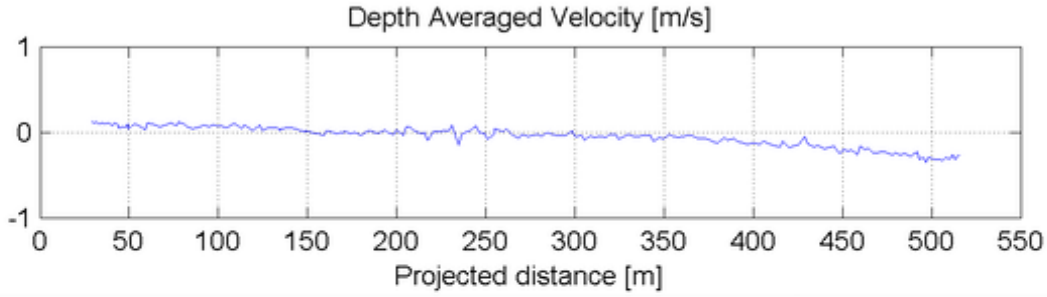
I/RA/11283/08.087/MSA

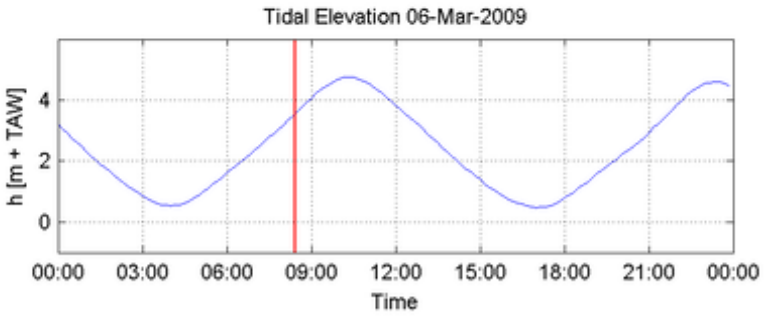
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3030DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
08:23 - 08:25

Time after HW [HH:MM]
-1:55

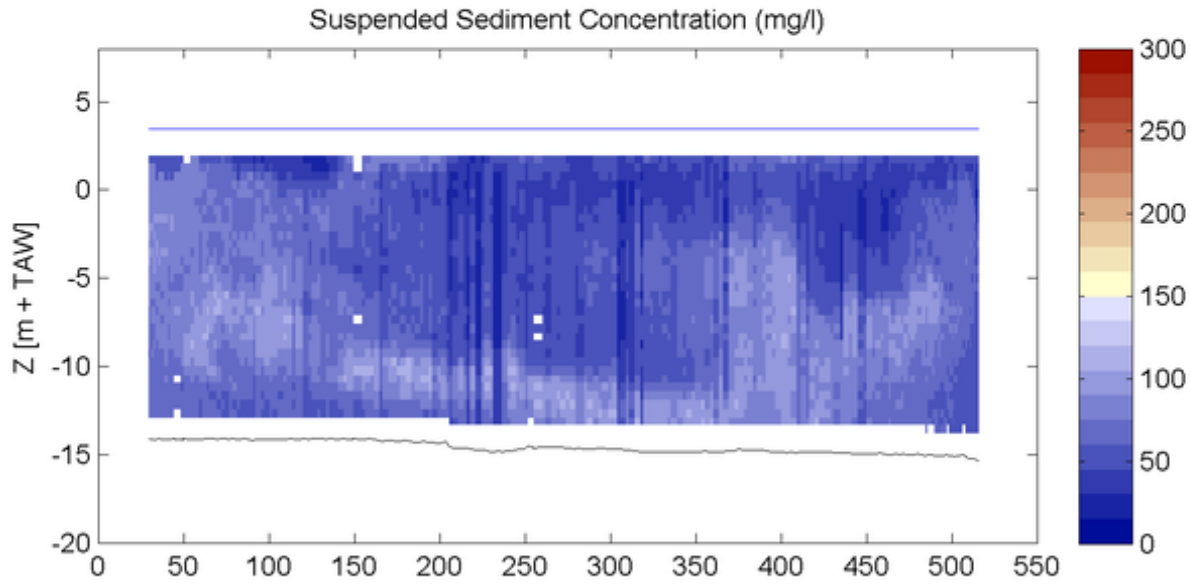
Data Processed by:

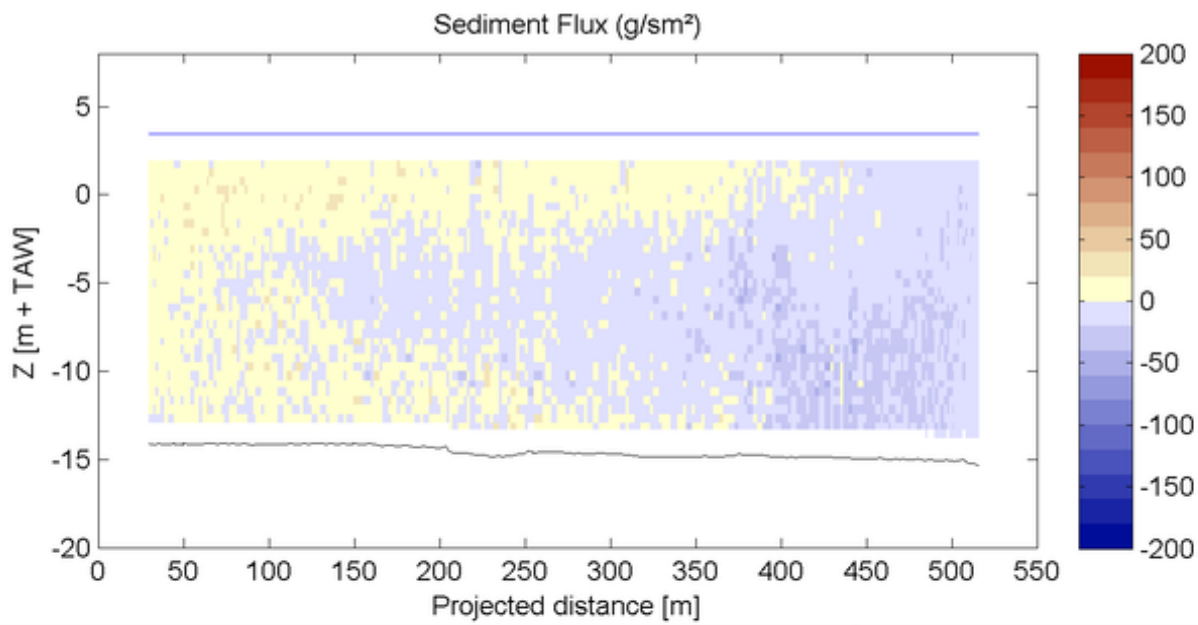
In association with :

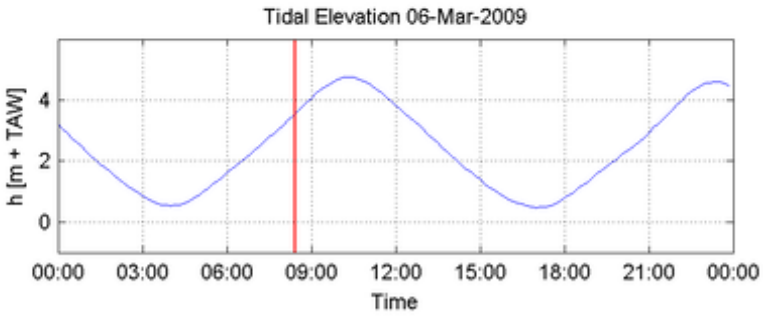
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3030DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

08:23 - 08:25

Time after HW [HH:MM]

-1:55

Data Processed by:

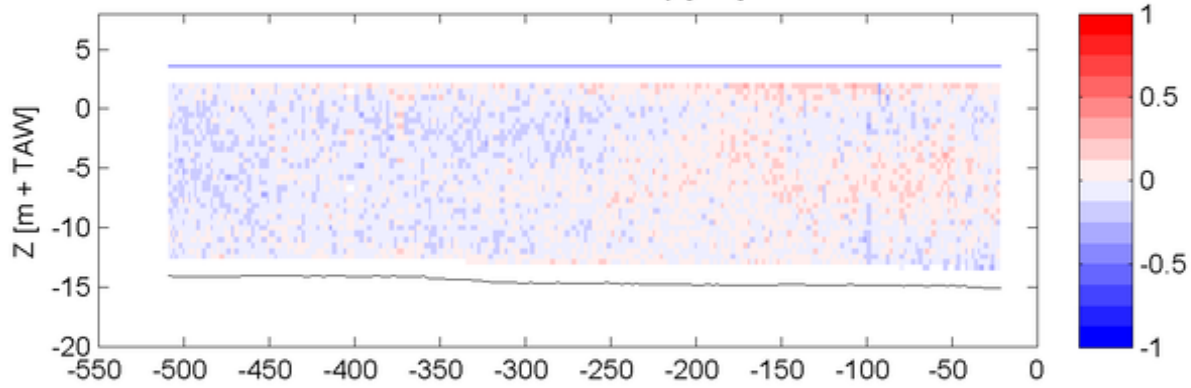
In association with :

I/RA/11283/08.087/MSA

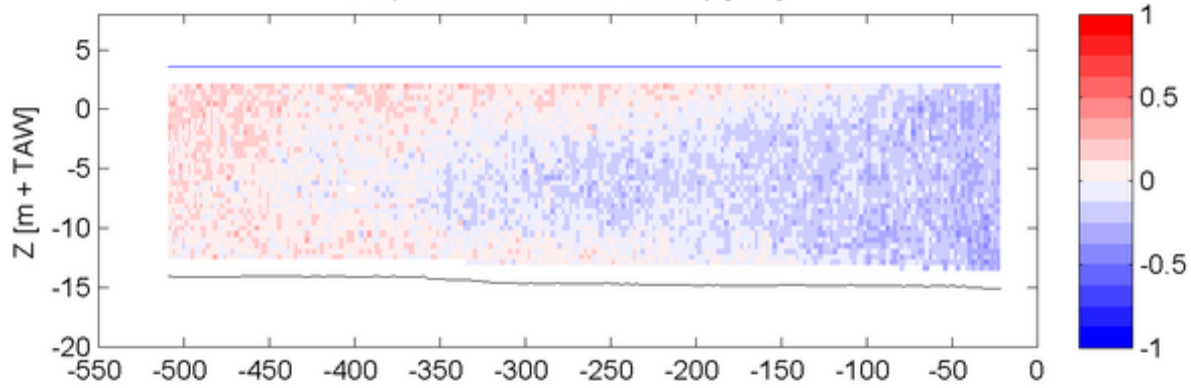
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3032DGDtrl_sub.csv	Location: Deurganckdok

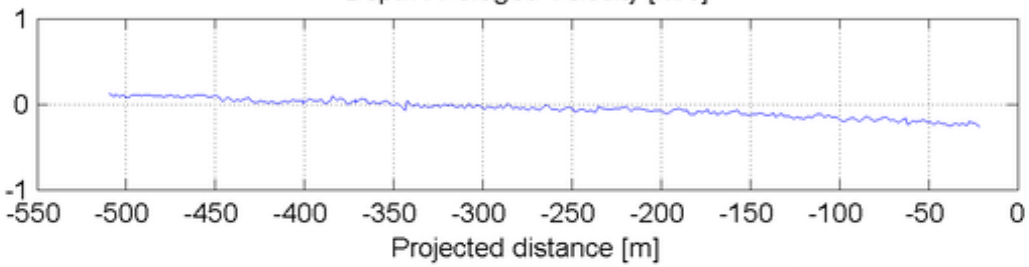
Parallel Current Velocity [m/s]



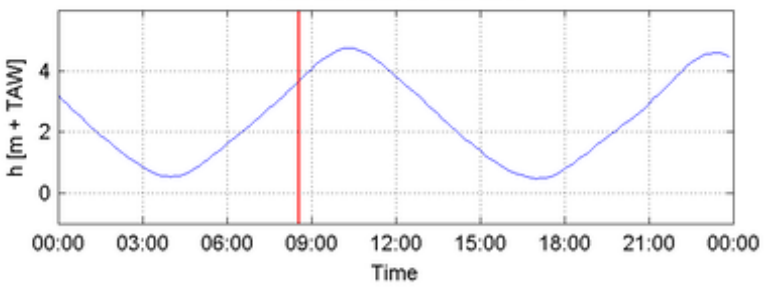
Perpendicular Current Velocity [m/s]



Depth Averaged Velocity [m/s]



Tidal Elevation 06-Mar-2009



HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
08:31 - 08:34

Time after HW [HH:MM]
-1:47

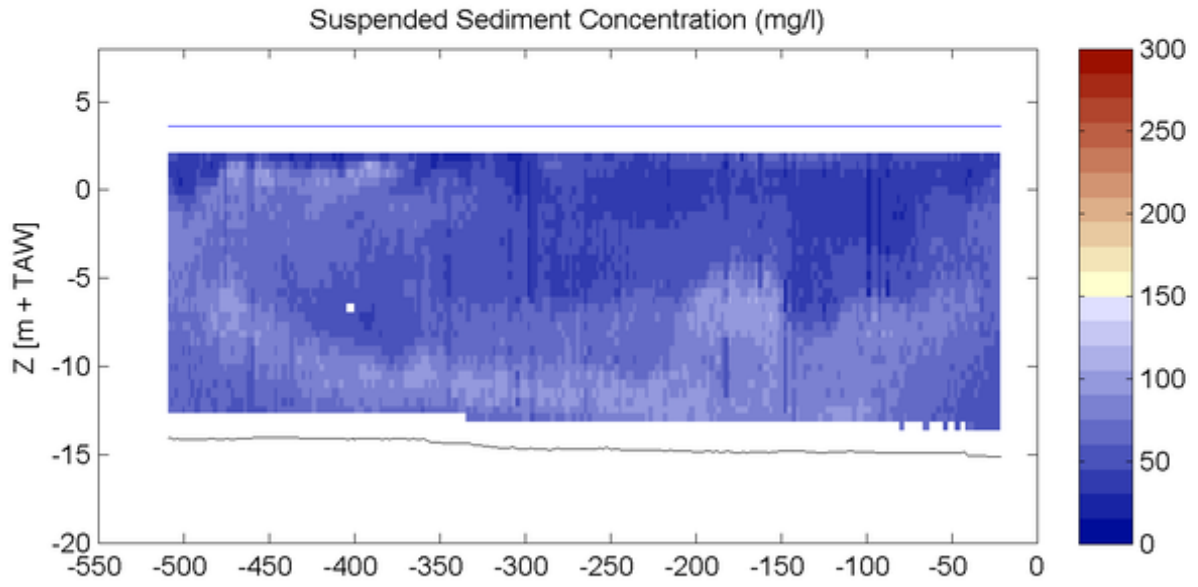
Data Processed by:

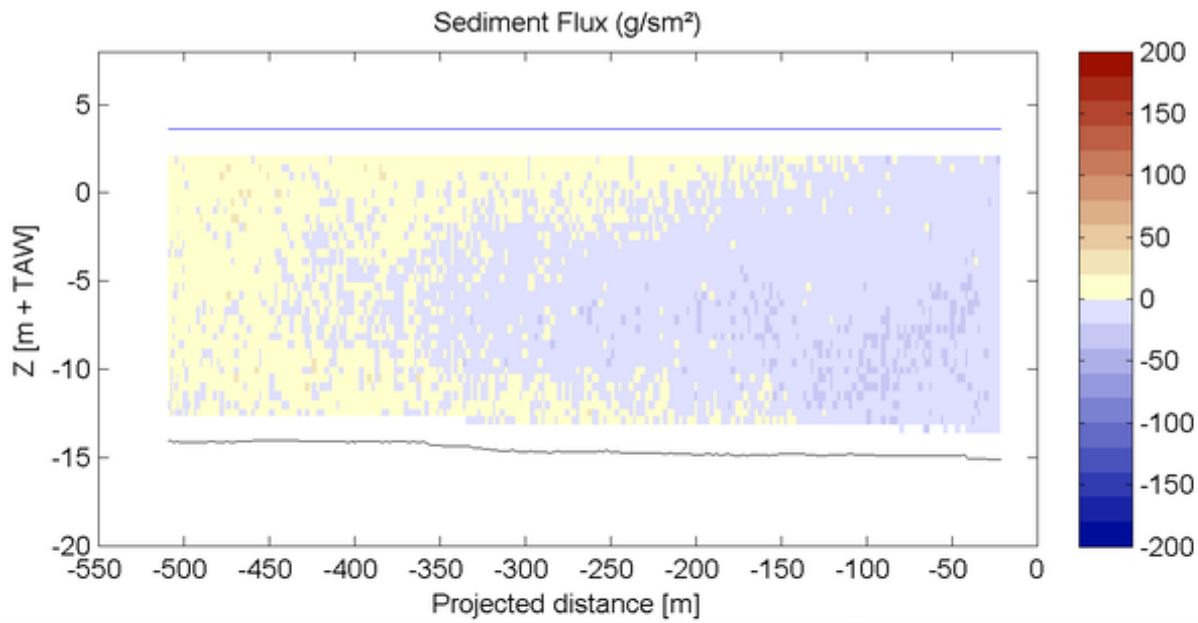
In association with :

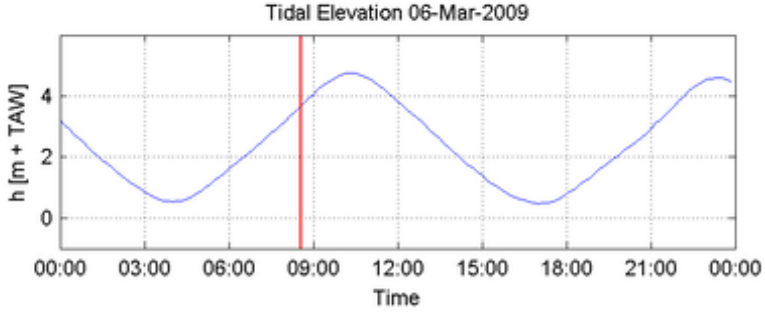
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3032DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

08:31 - 08:34

Time after HW [HH:MM]

-1:47

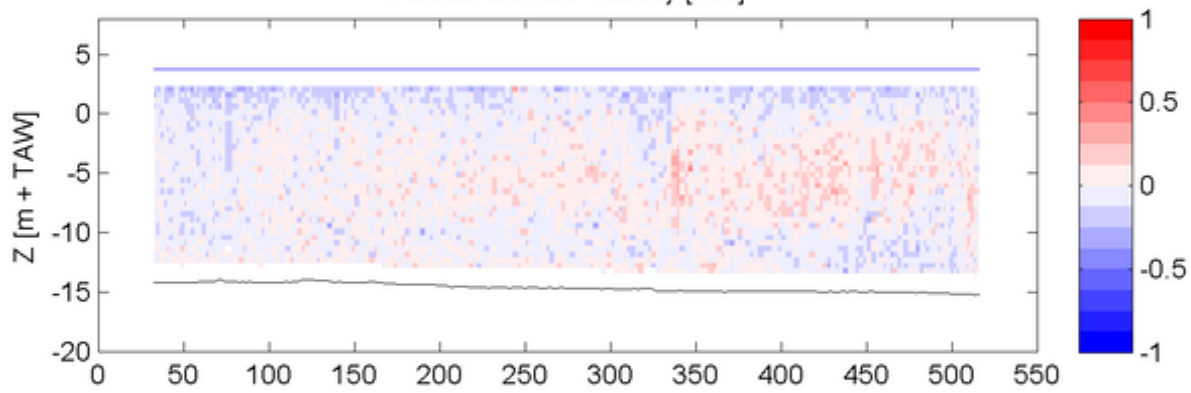
Data Processed by:

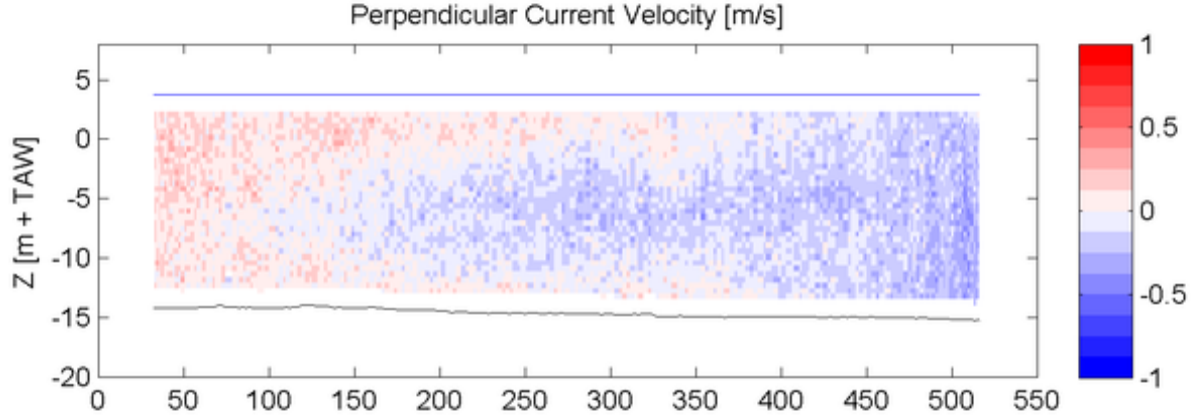
In association with :

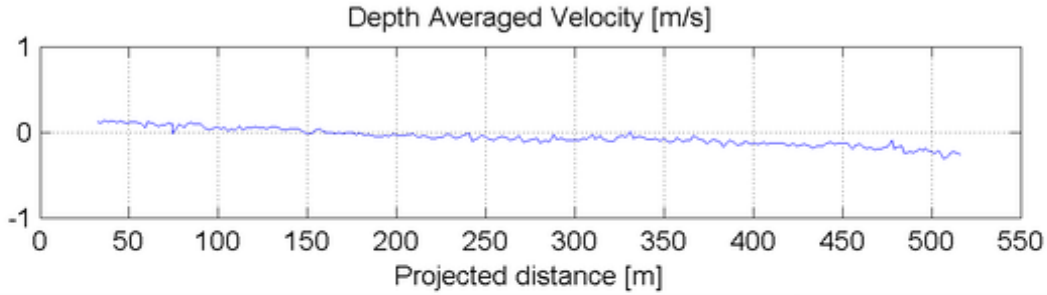
I/RA/11283/08.087/MSA

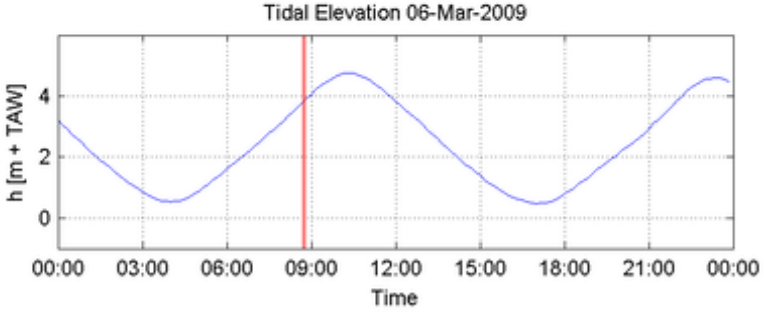
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3034DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
08:43 - 08:45

Time after HW [HH:MM]
-1:35

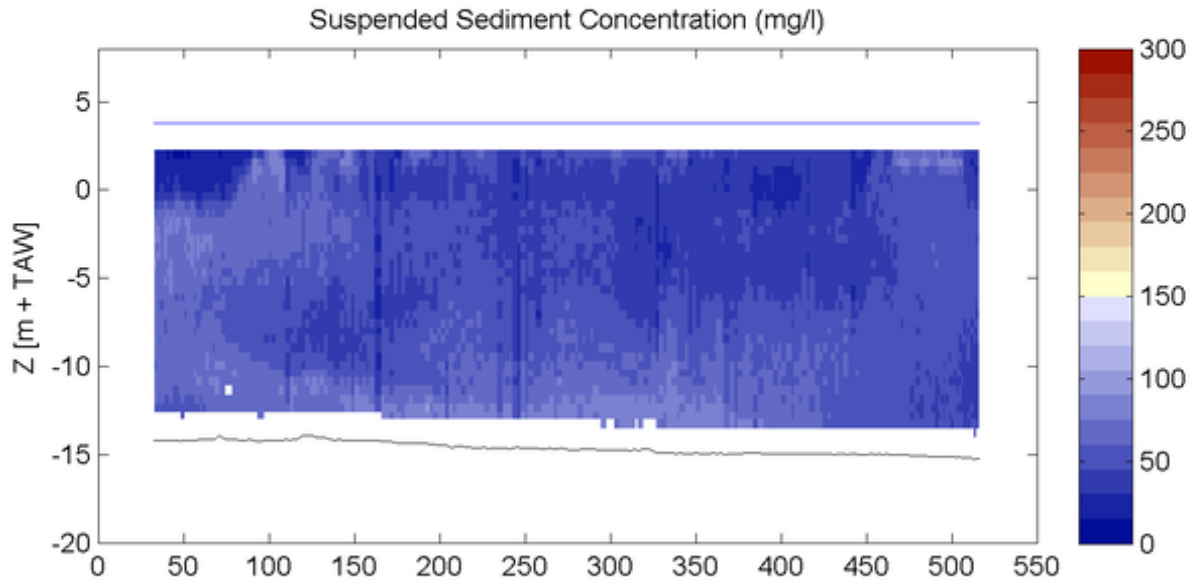
Data Processed by:

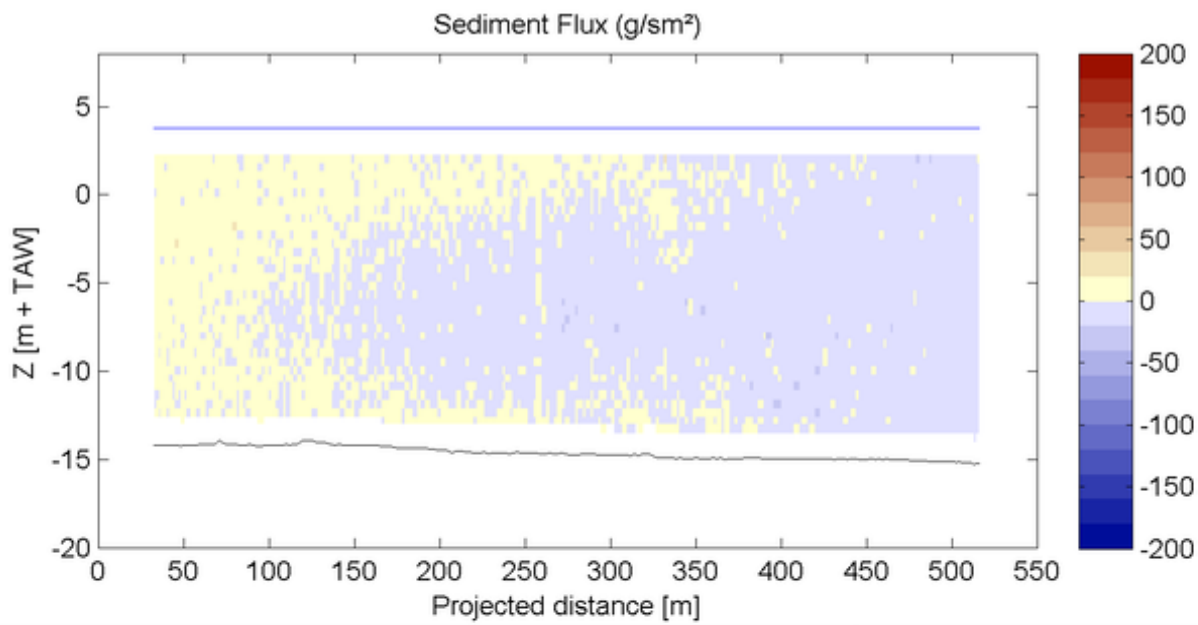
In association with :

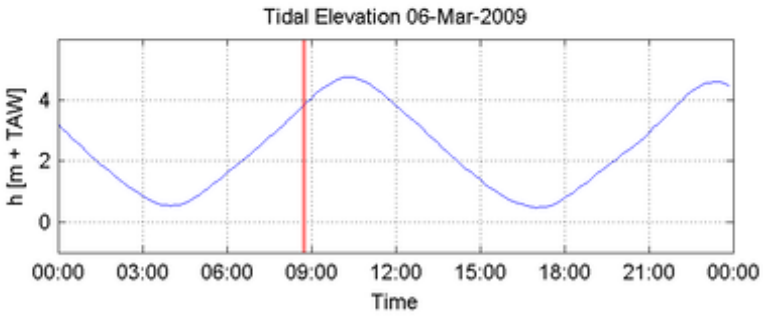
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3034DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

08:43 - 08:45

Time after HW [HH:MM]

-1:35

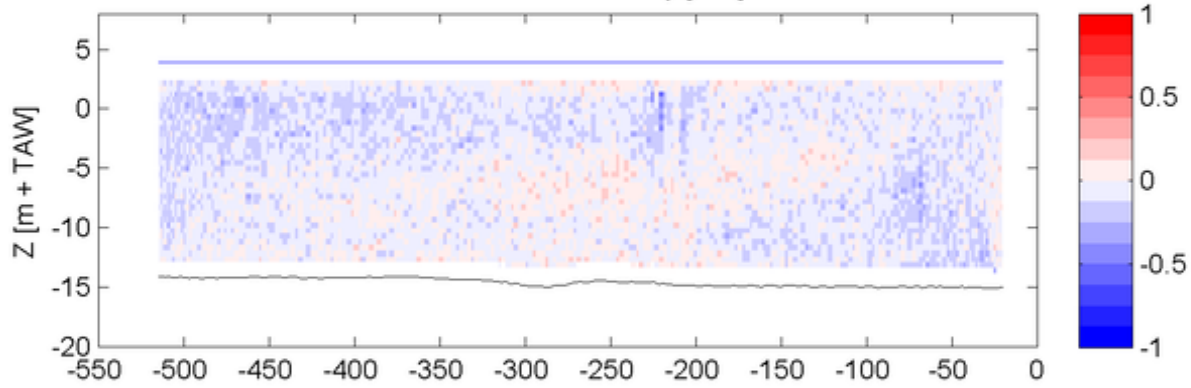
Data Processed by:

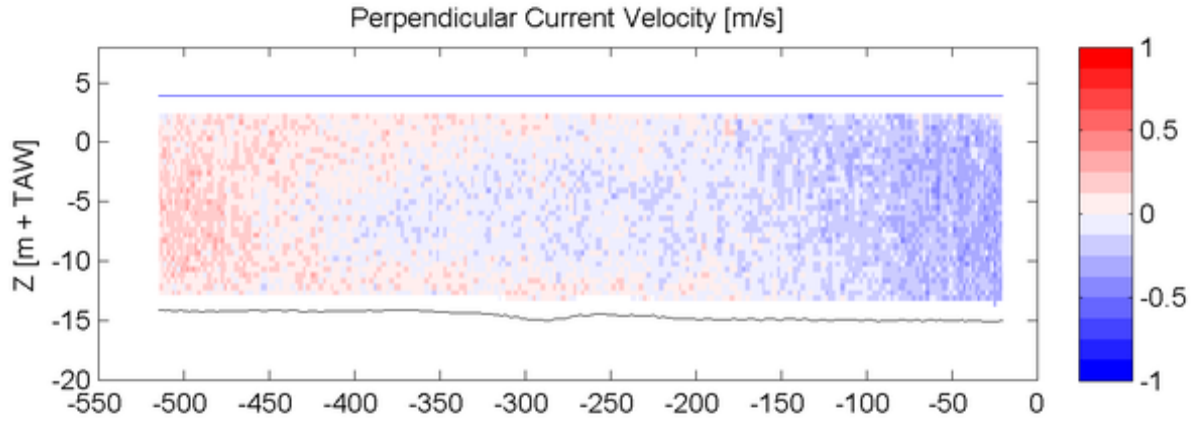
In association with :

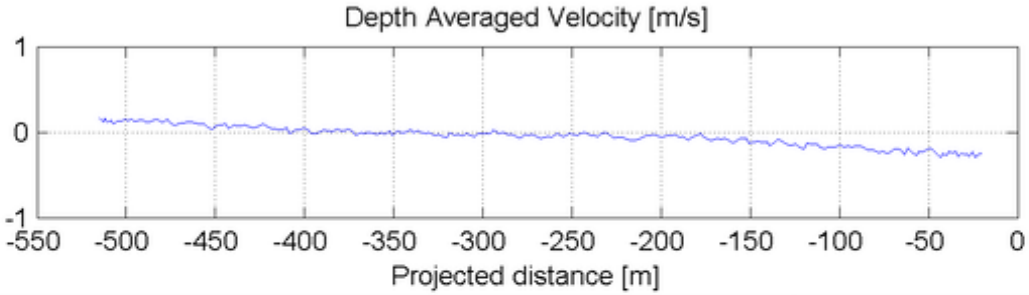
I/RA/11283/08.087/MSA

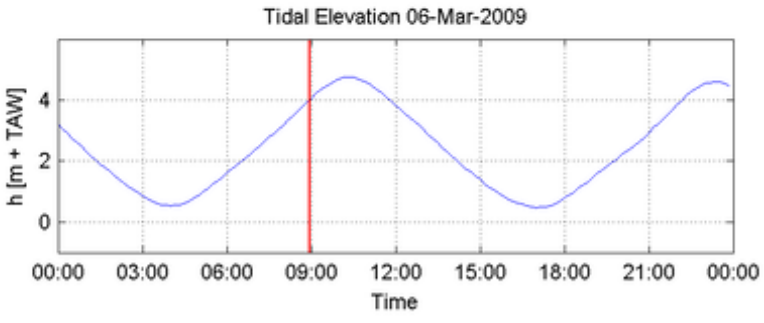
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3036DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
08:53 - 08:56

Time after HW [HH:MM]
-1:24

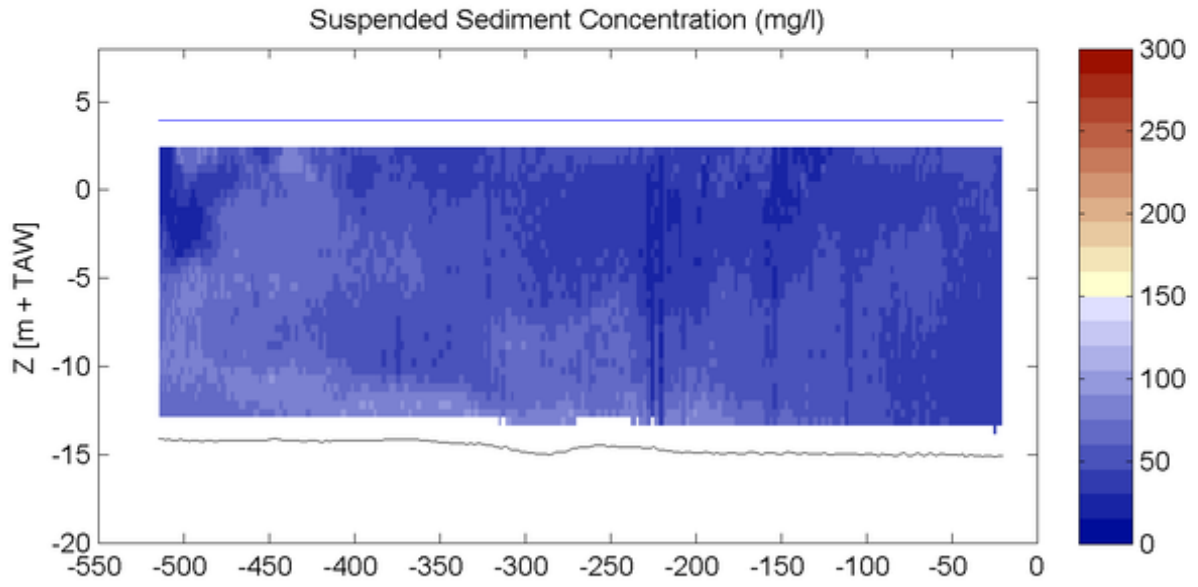
Data Processed by:

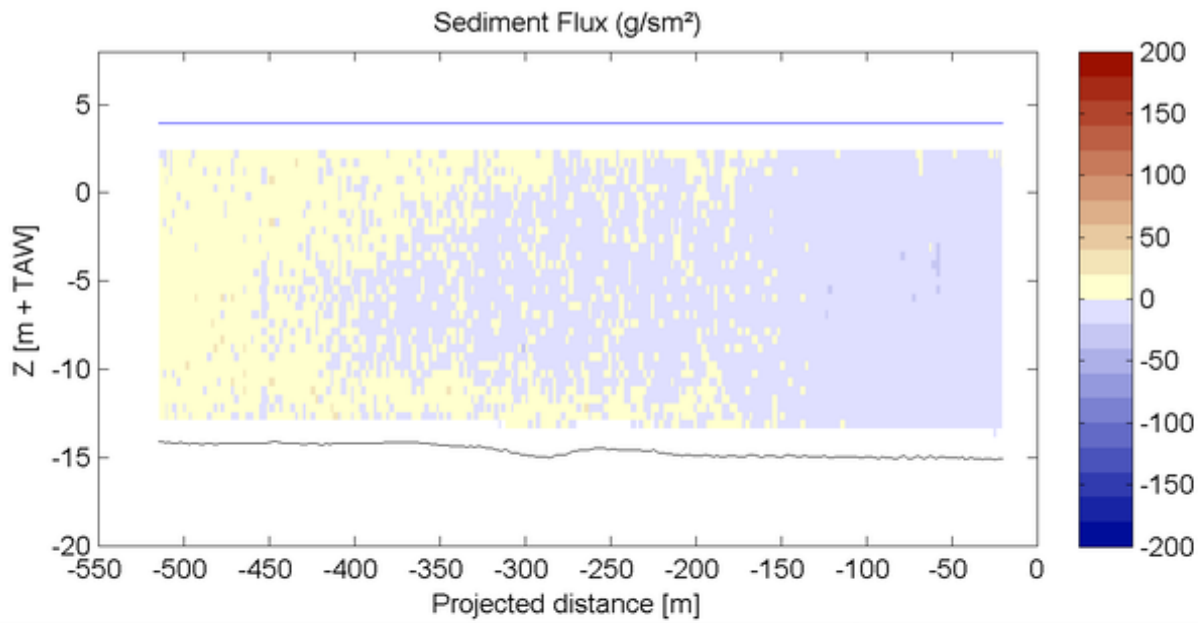
In association with :

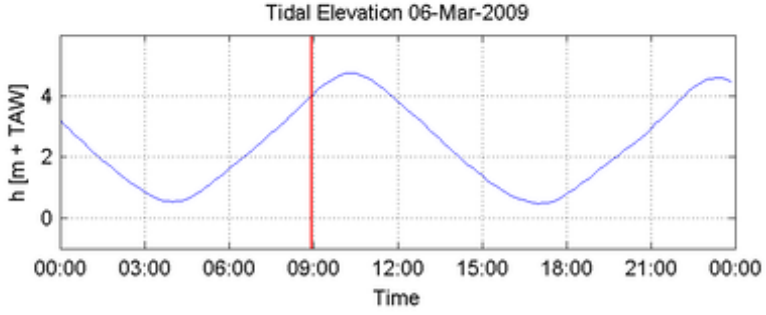
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3036DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
08:53 - 08:56

Time after HW [HH:MM]
-1:24

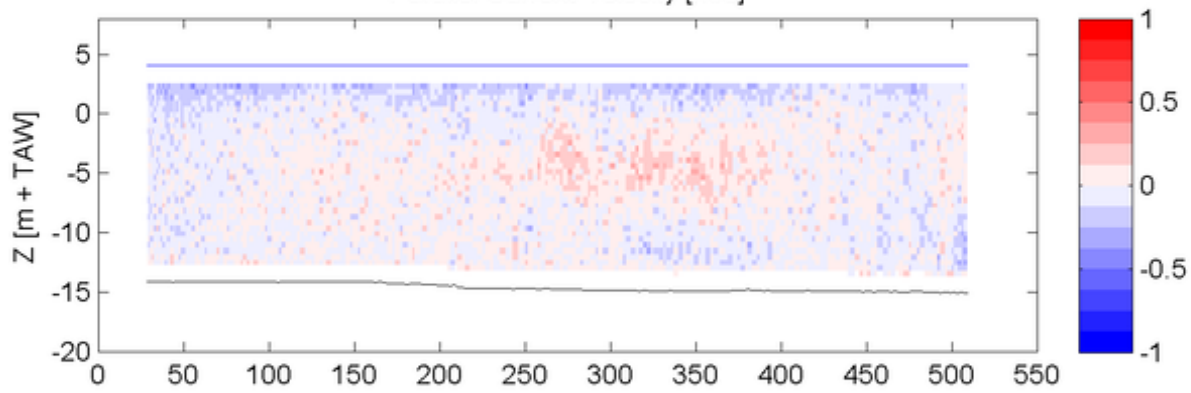
Data Processed by:

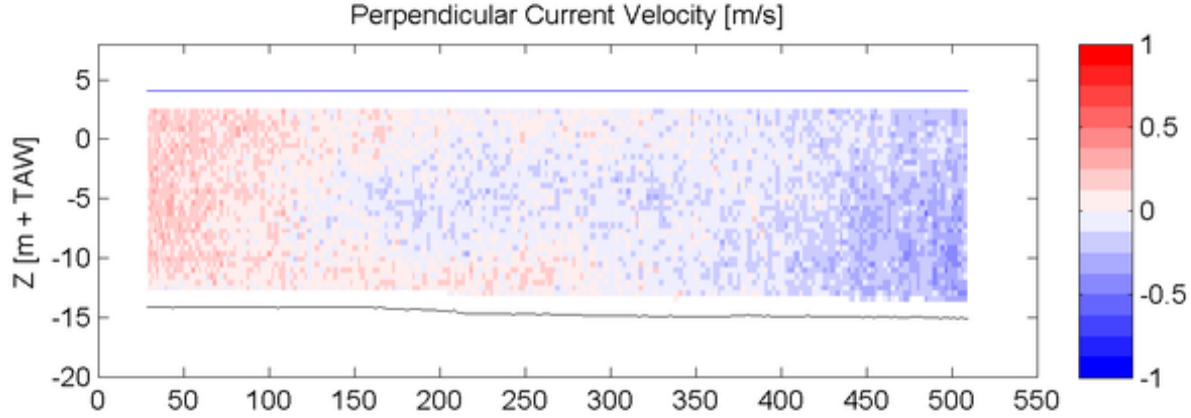
In association with :

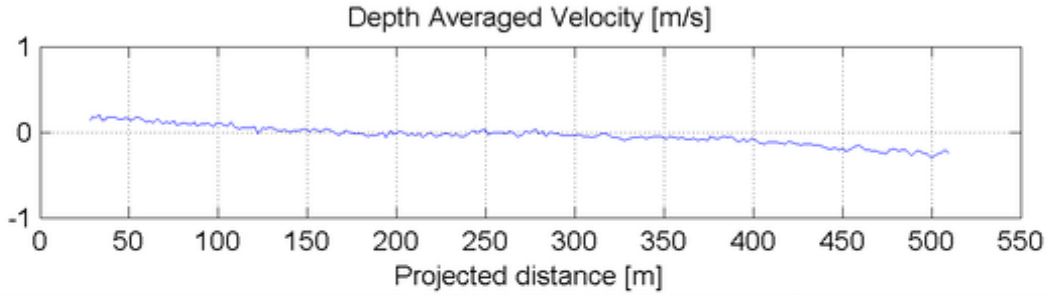
I/RA/11283/08.087/MSA

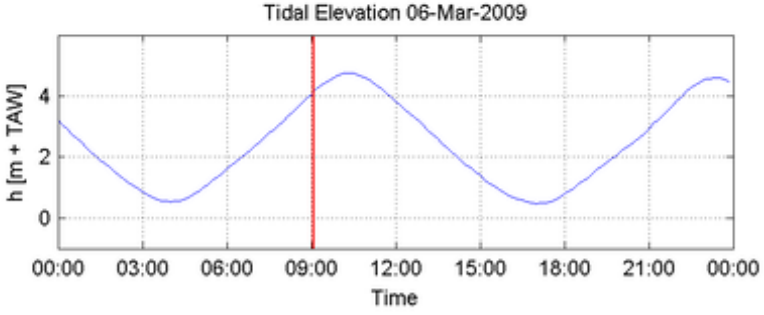
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3038DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:03 - 09:06

Time after HW [HH:MM]
-1:15

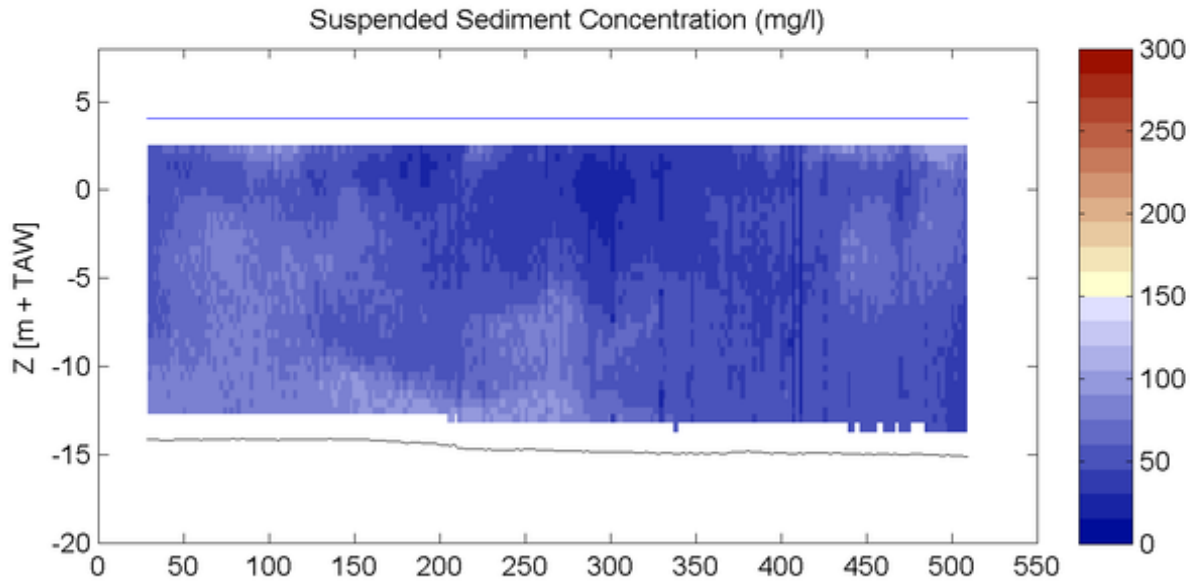
Data Processed by:

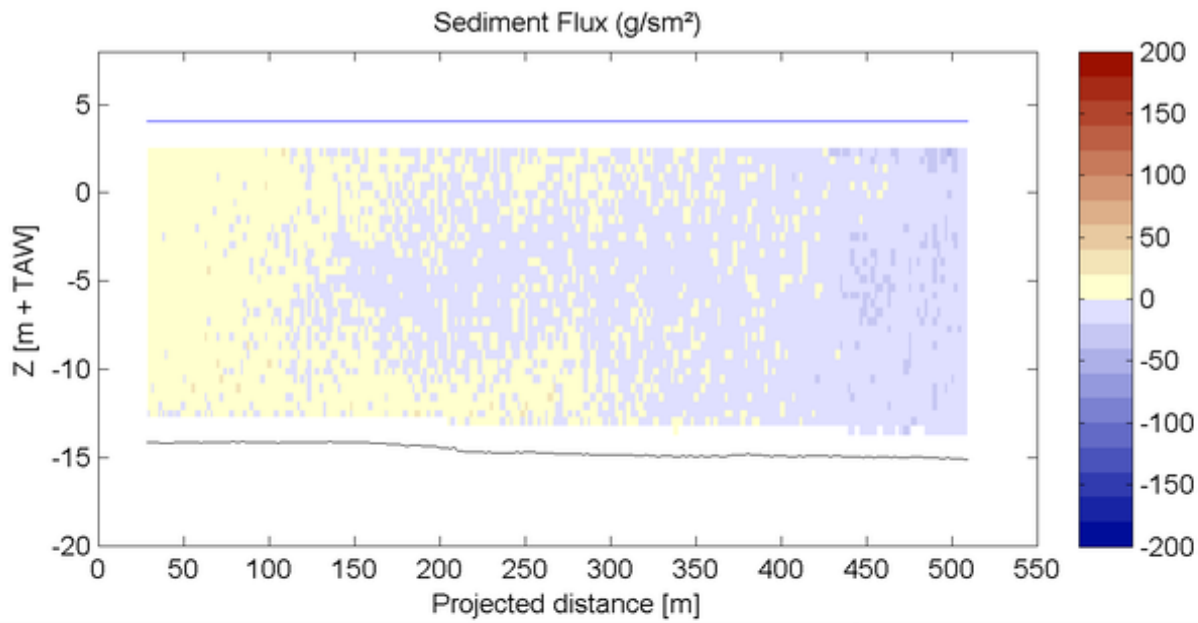
In association with :

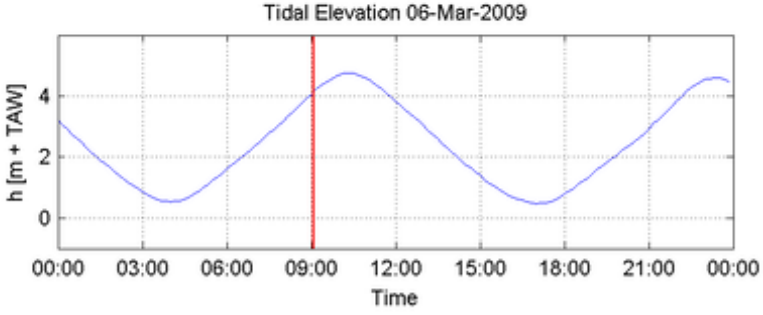
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3038DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:03 - 09:06

Time after HW [HH:MM]
-1:15

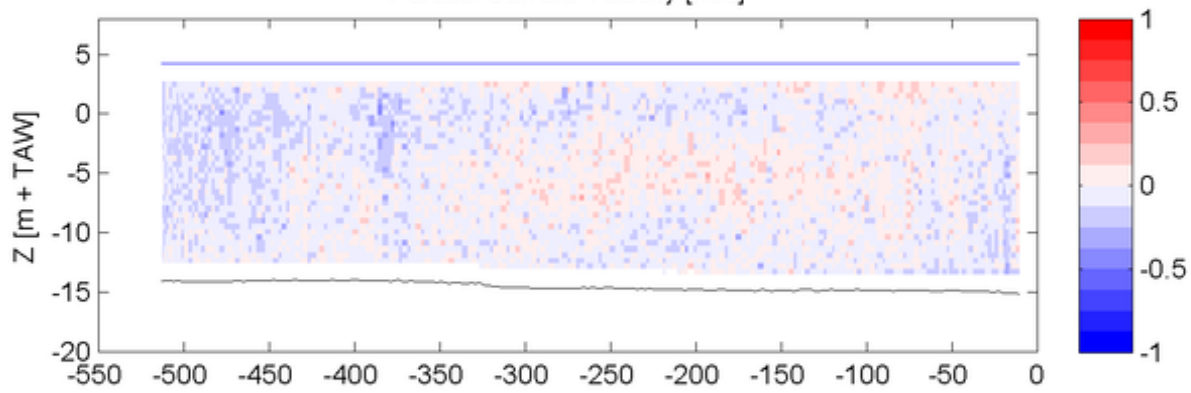
Data Processed by:

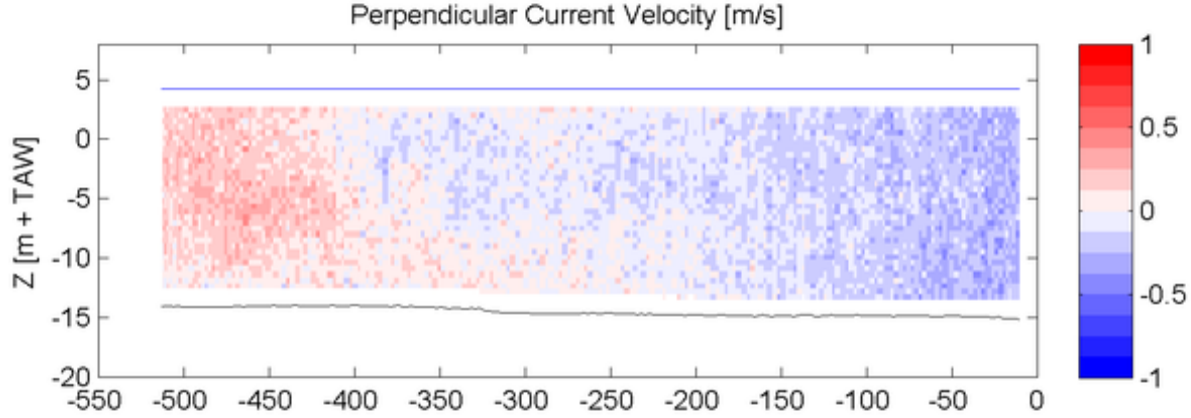
In association with :

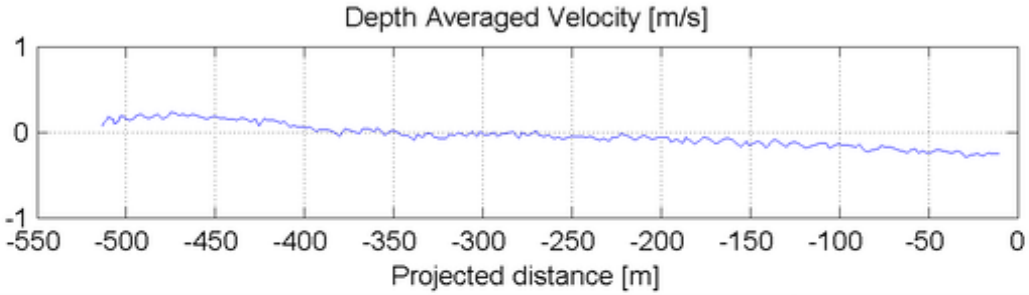
I/RA/11283/08.087/MSA

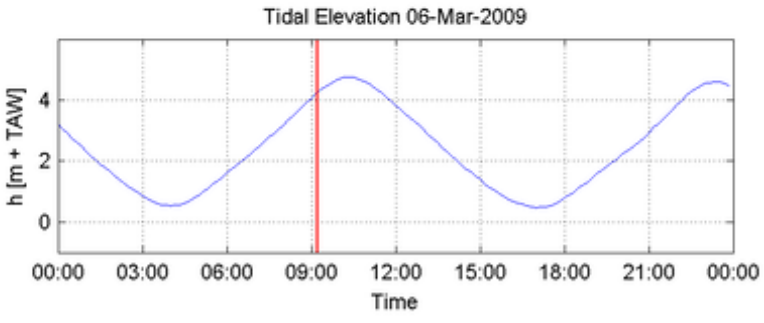
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3040DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:11 - 09:14

Time after HW [HH:MM]
-1:07

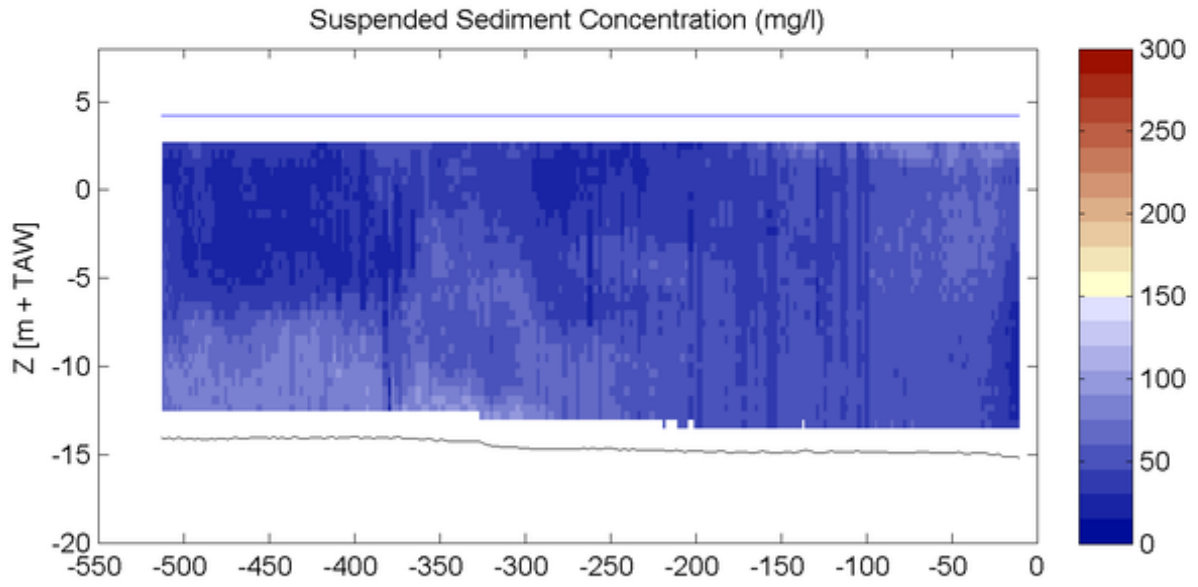
Data Processed by:

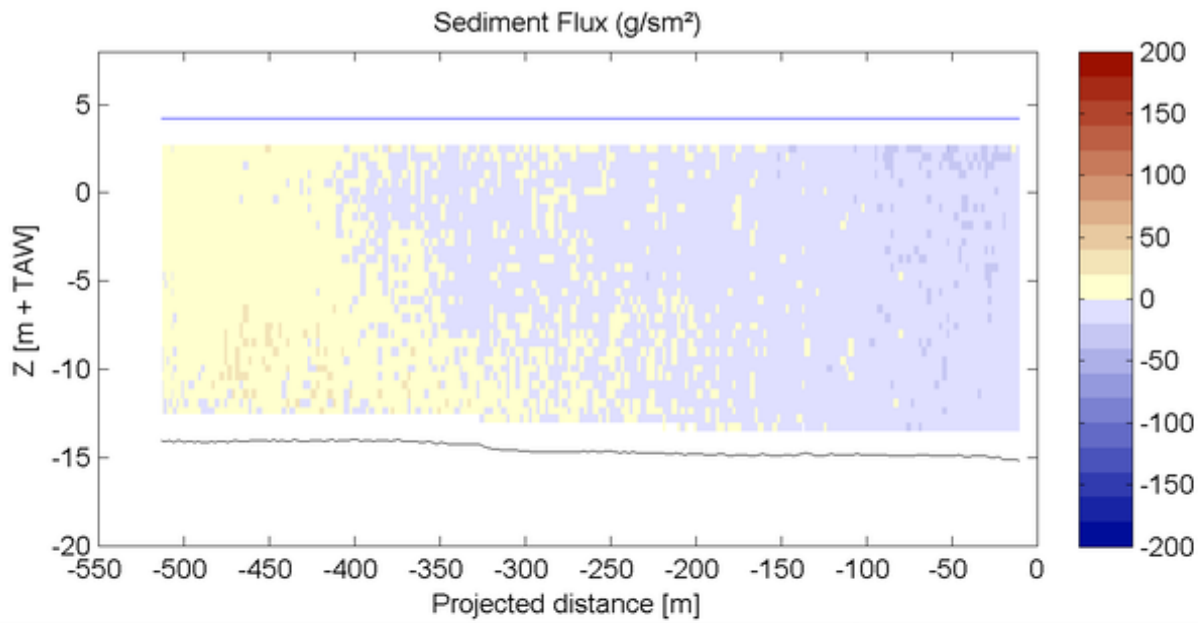
In association with :

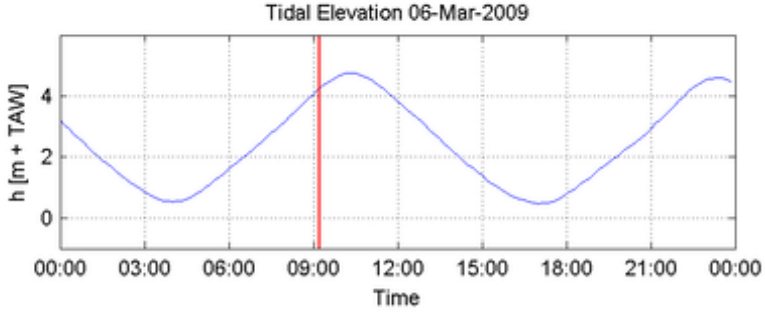
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3040DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:11 - 09:14

Time after HW [HH:MM]
-1:07

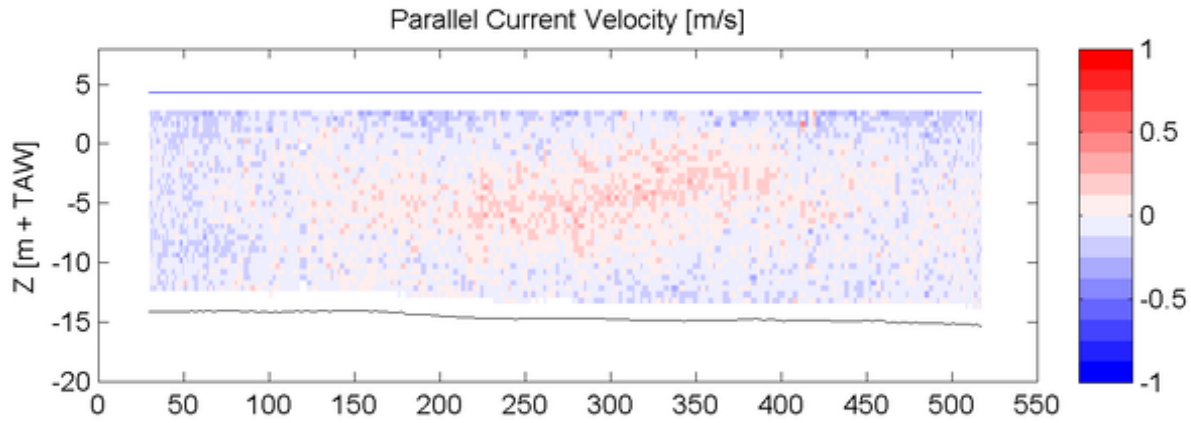
Data Processed by:

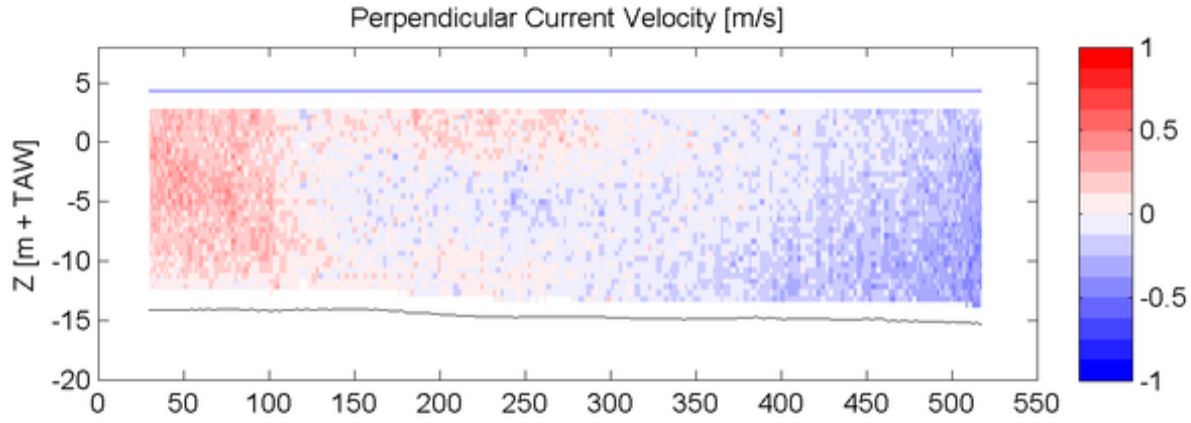
In association with :

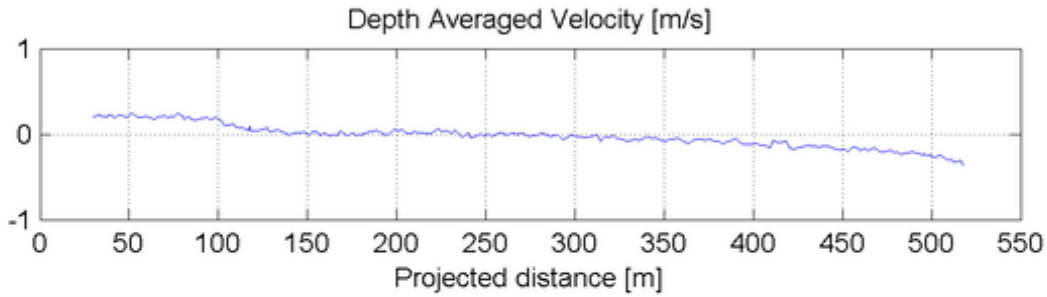
I/RA/11283/08.087/MSA

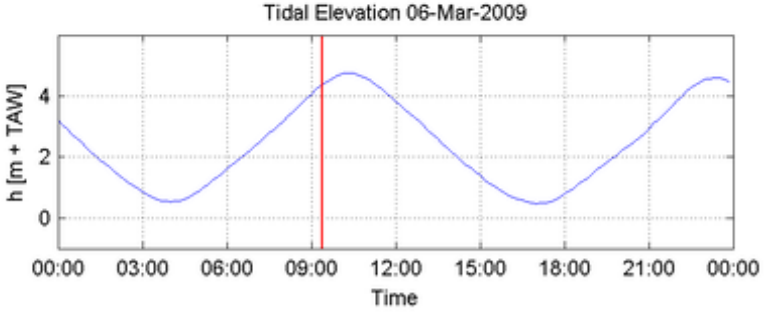
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3042DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:21 - 09:24

Time after HW [HH:MM]
-0:57

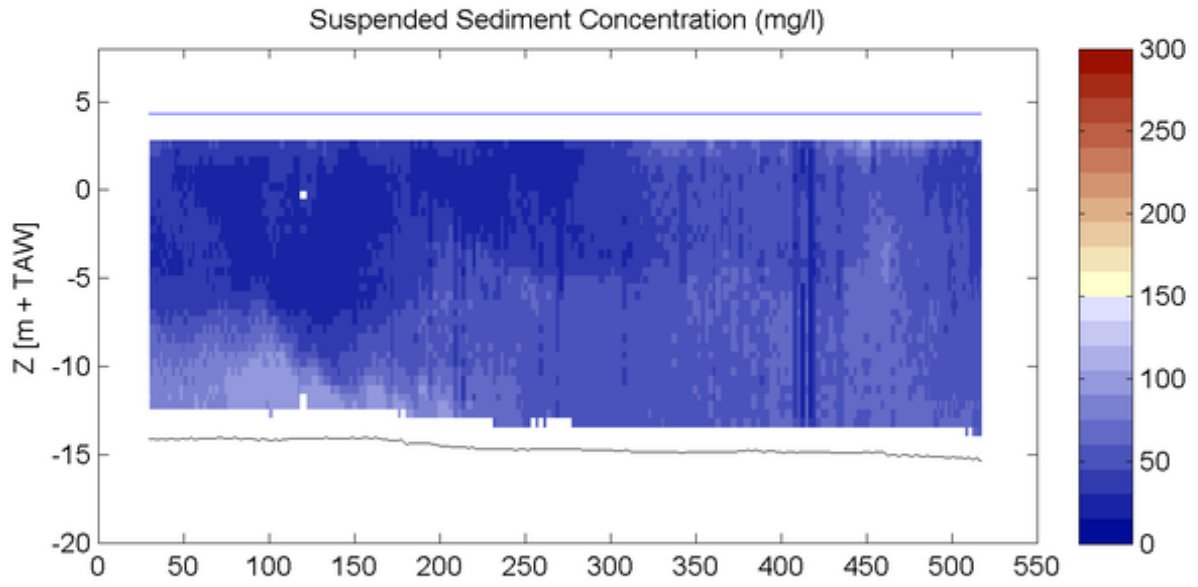
Data Processed by:

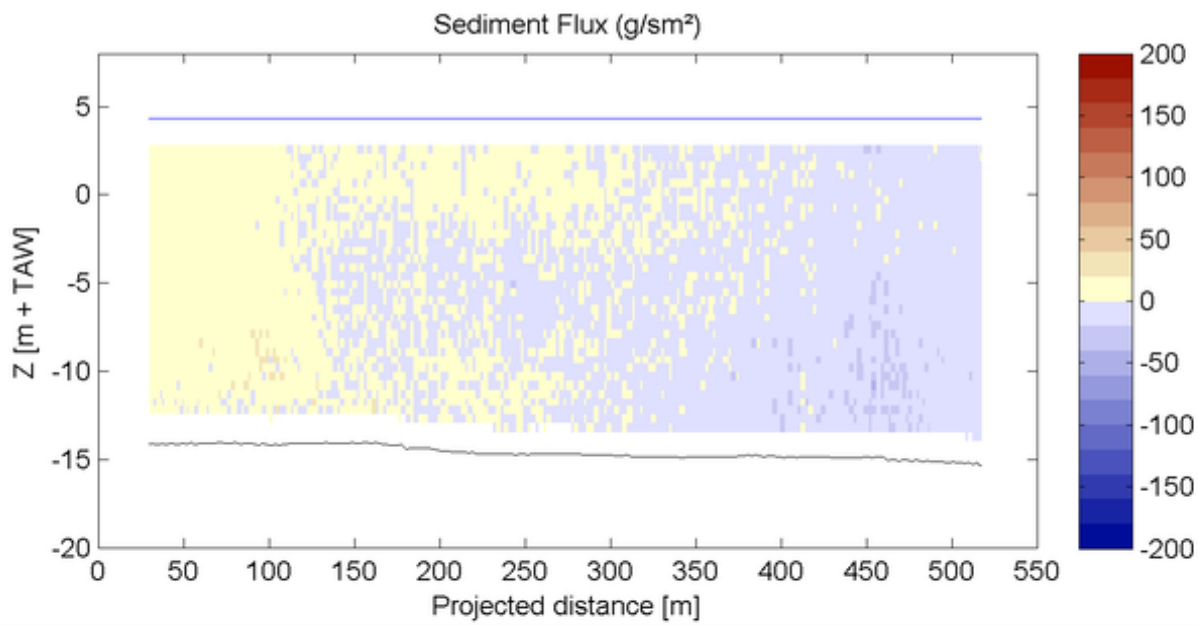
In association with :

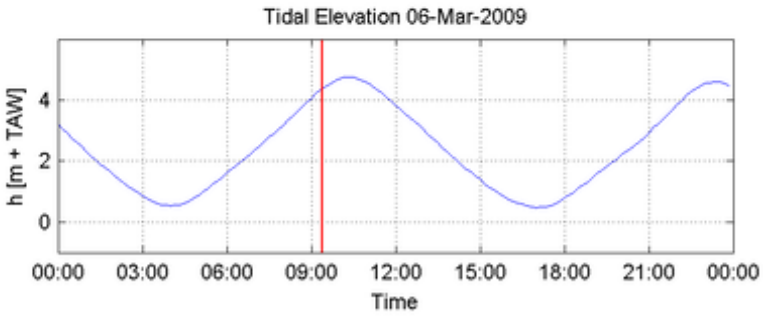
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3042DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:21 - 09:24

Time after HW [HH:MM]
-0:57

Data Processed by:

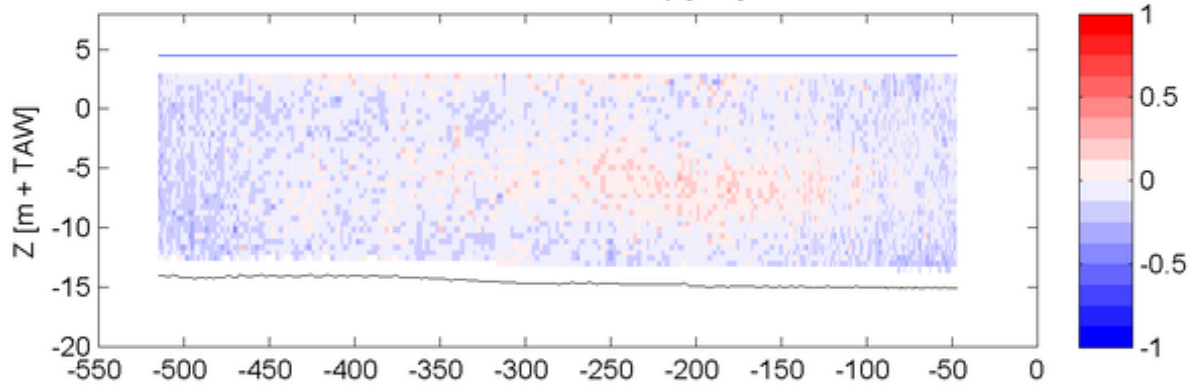
In association with :

I/RA/11283/08.087/MSA

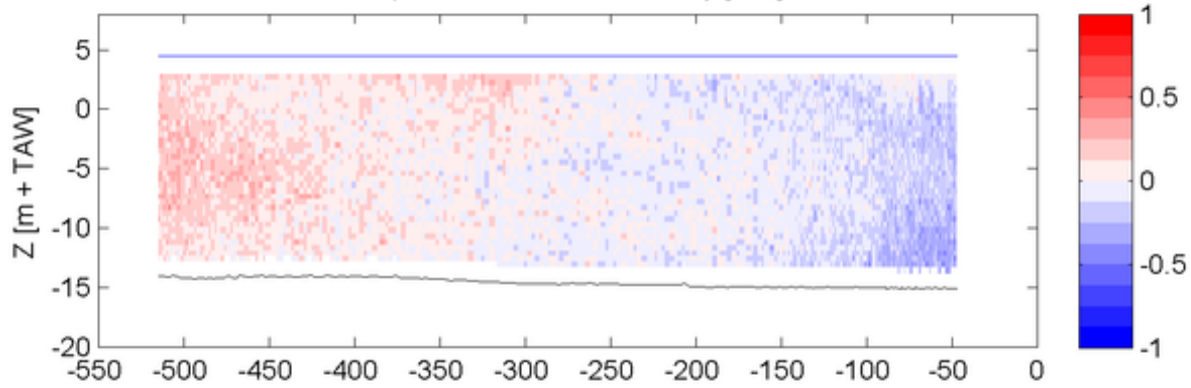
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3044DGDtrl_sub.csv	Location: Deurganckdok

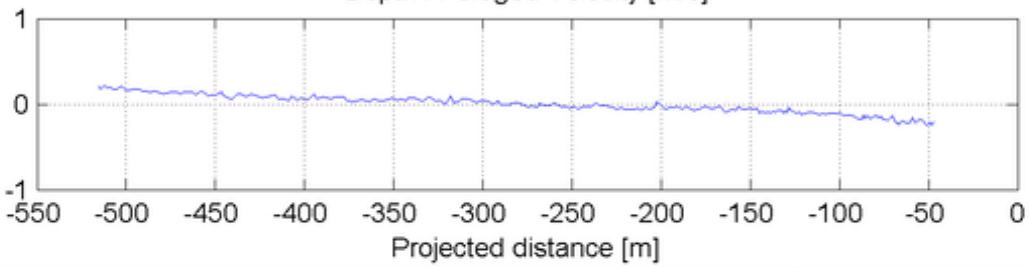
Parallel Current Velocity [m/s]



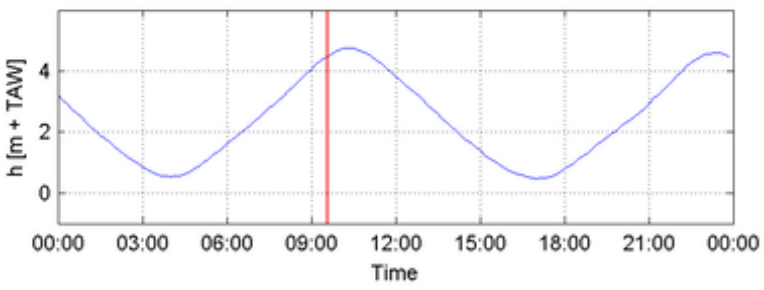
Perpendicular Current Velocity [m/s]



Depth Averaged Velocity [m/s]



Tidal Elevation 06-Mar-2009



HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:31 - 09:35

Time after HW [HH:MM]
-0:46

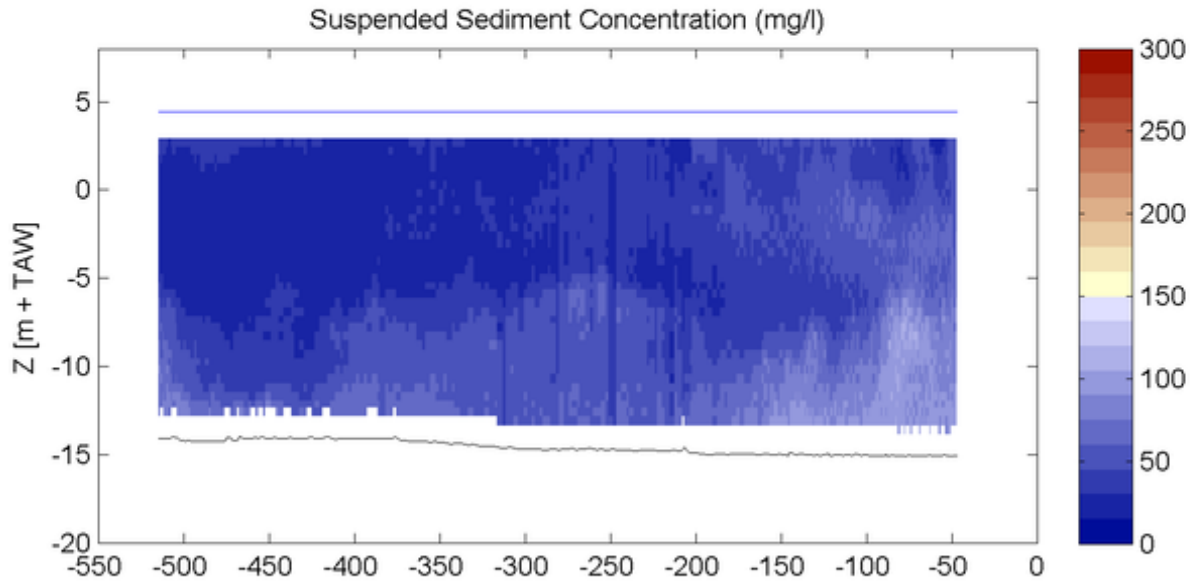
Data Processed by:

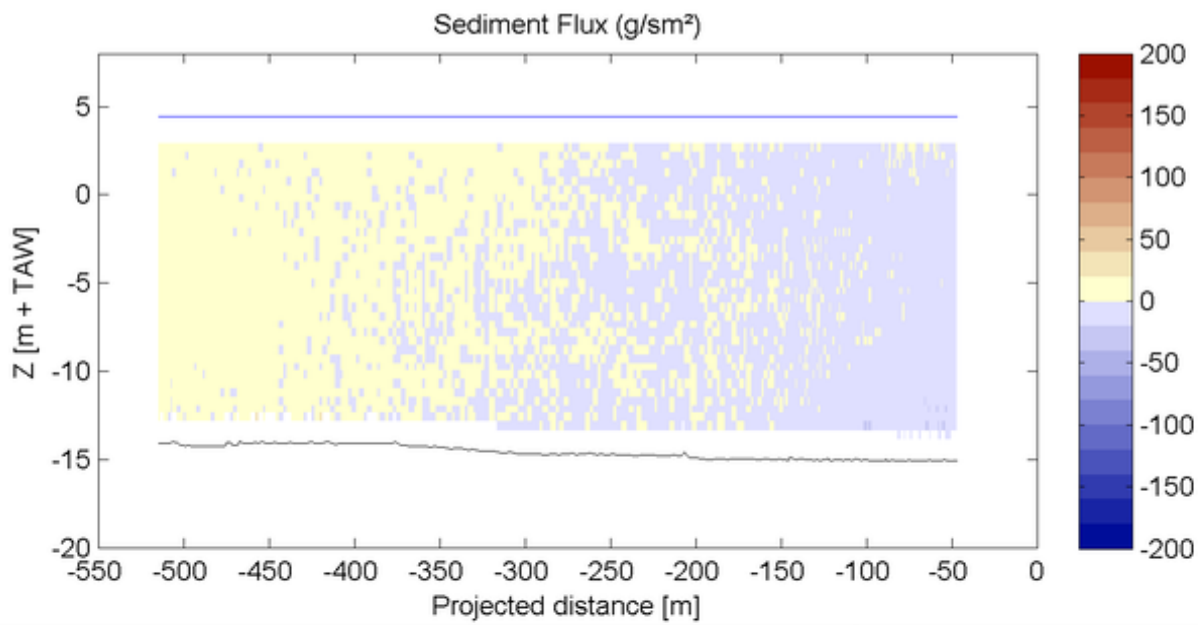
In association with :

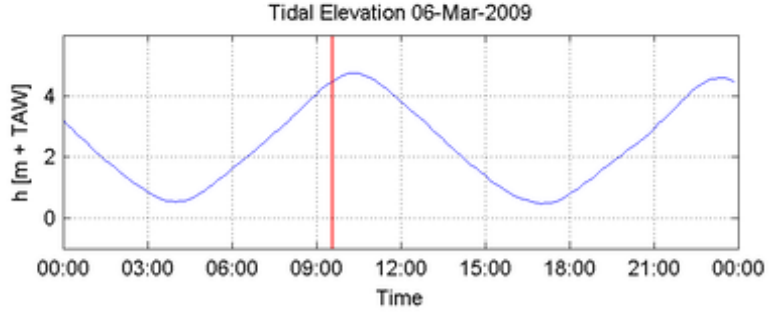
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3044DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:31 - 09:35

Time after HW [HH:MM]
-0:46

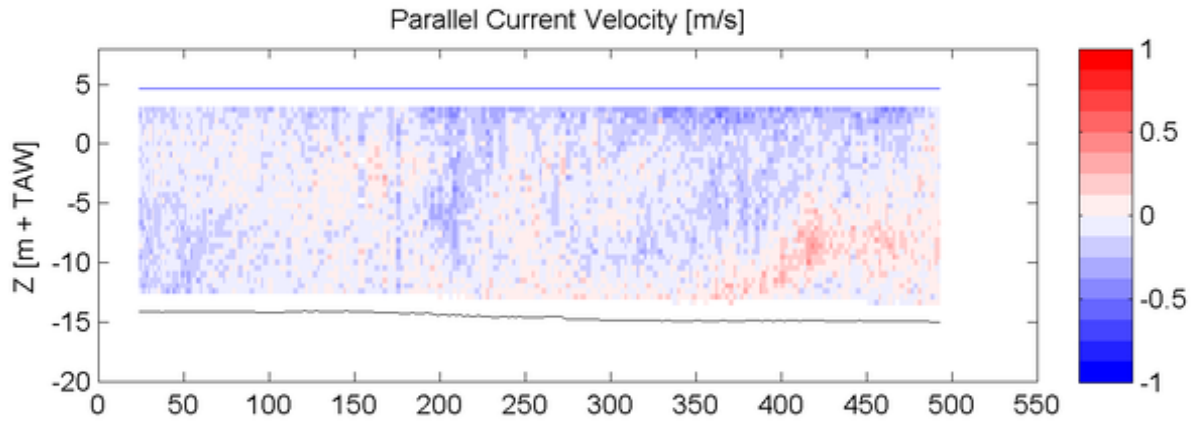
Data Processed by:

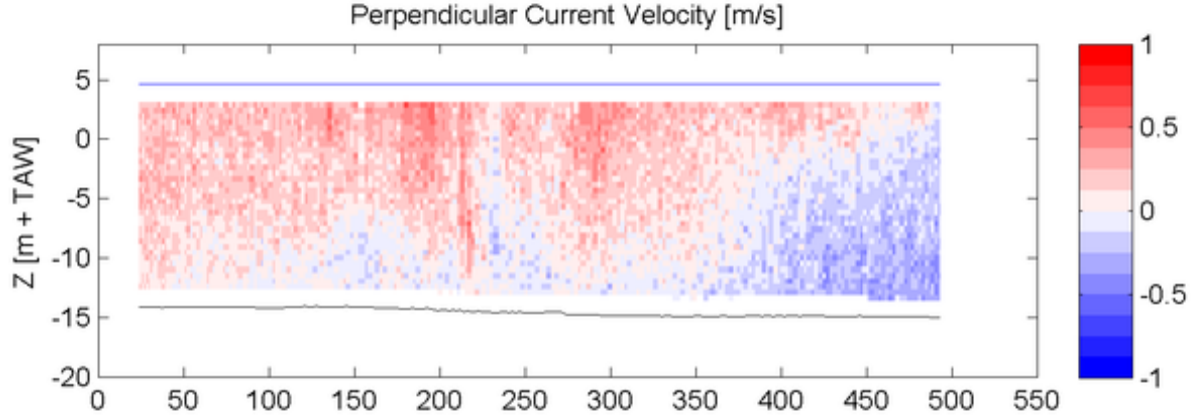
In association with :

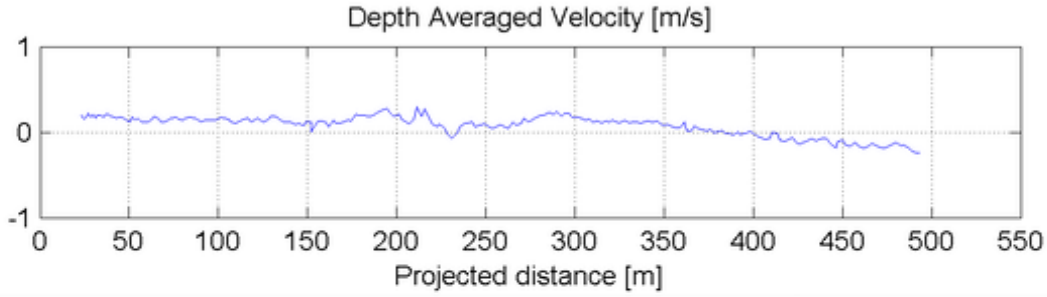
I/RA/11283/08.087/MSA

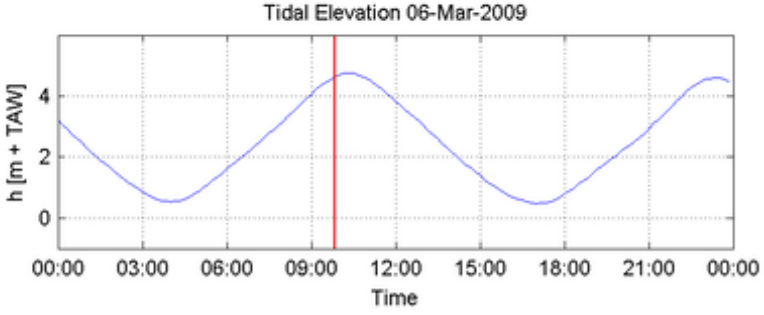
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3046DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:48 - 09:50

Time after HW [HH:MM]
-0:30

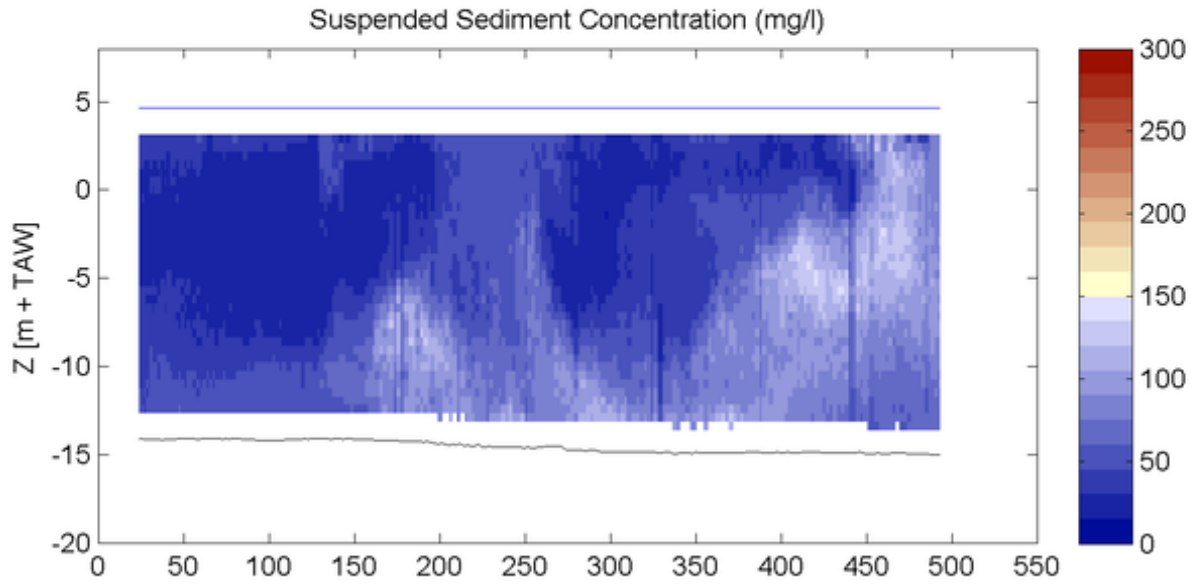
Data Processed by:

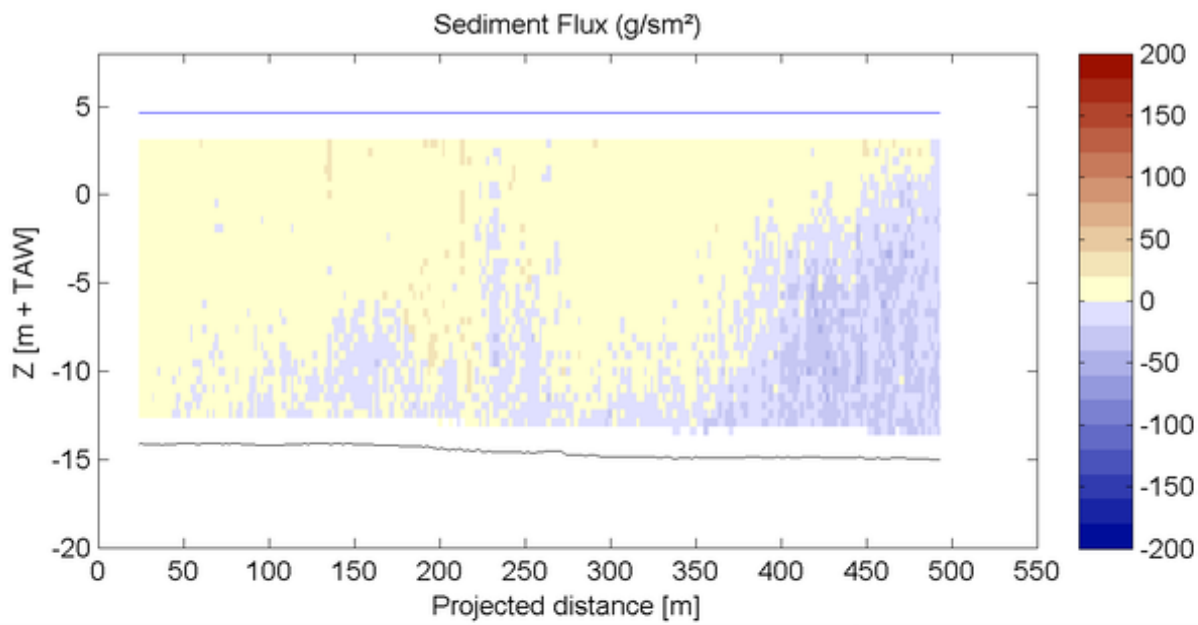
In association with :

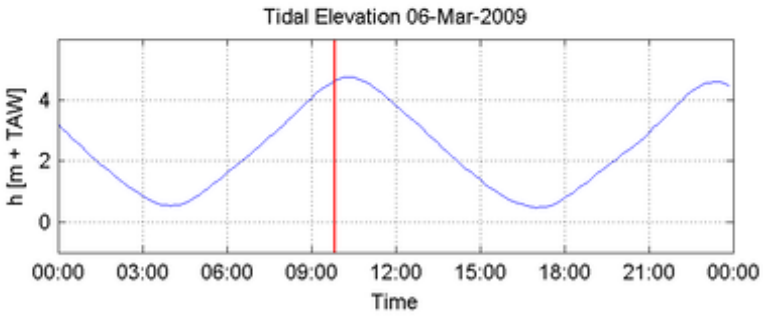
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3046DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:48 - 09:50

Time after HW [HH:MM]
-0:30

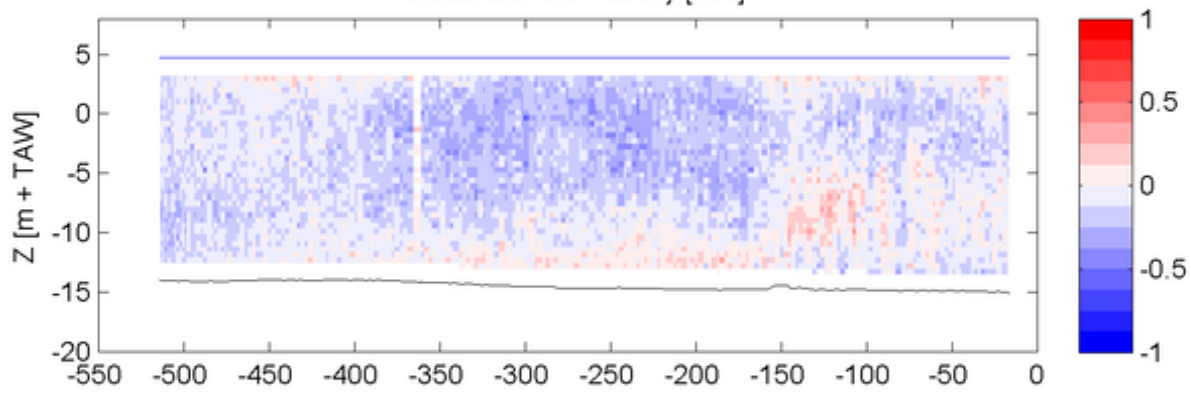
Data Processed by:

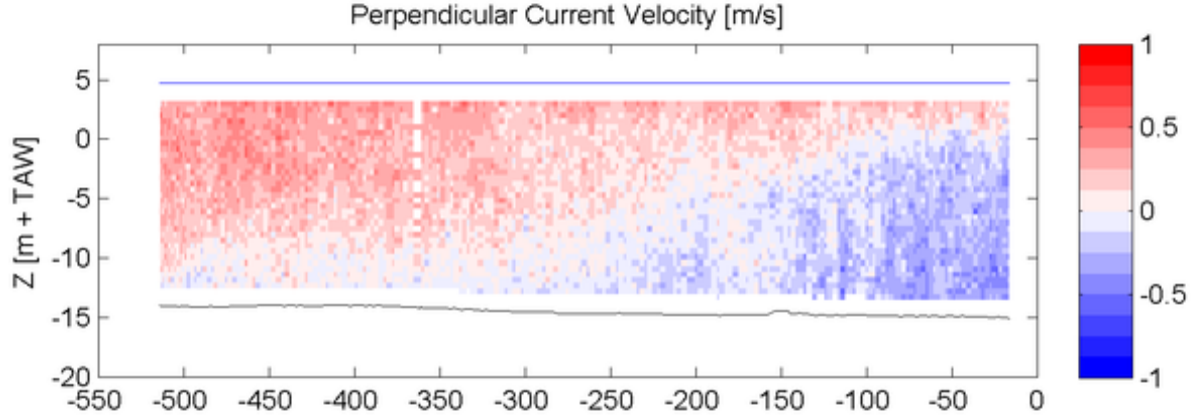
In association with :

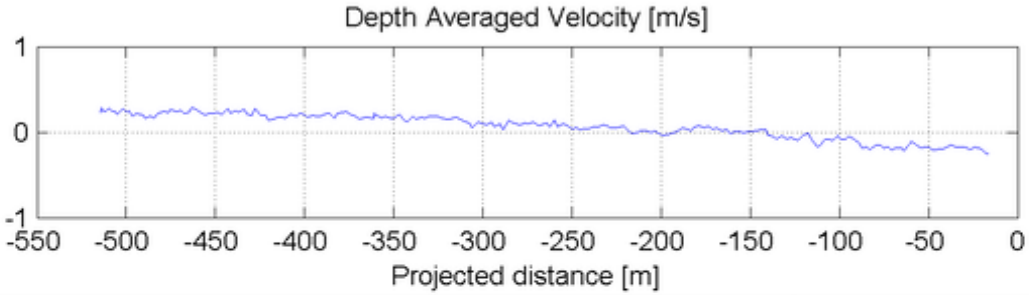
I/RA/11283/08.087/MSA

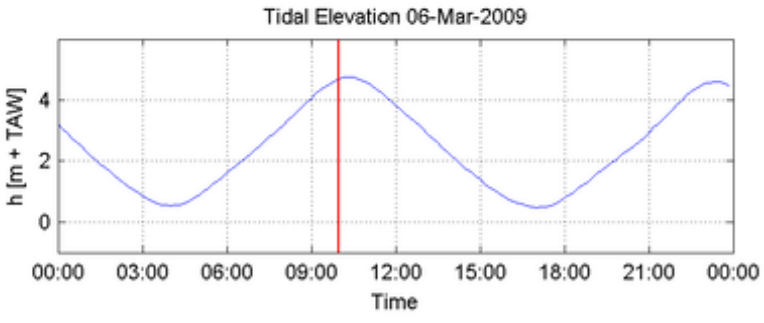
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3048DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:56 - 09:59

Time after HW [HH:MM]
-0:21

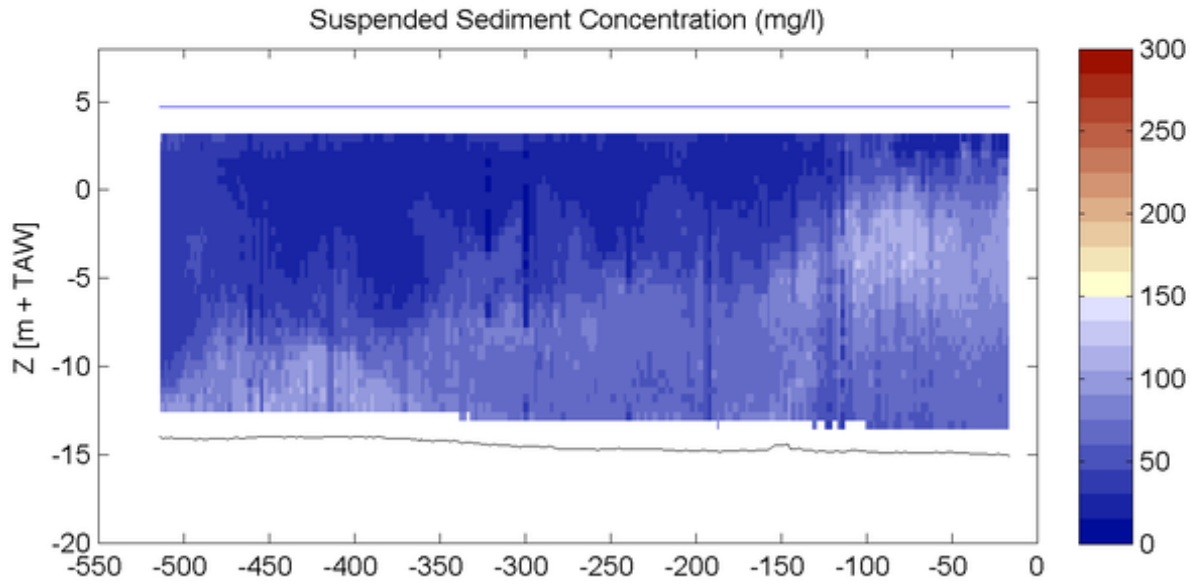
Data Processed by:

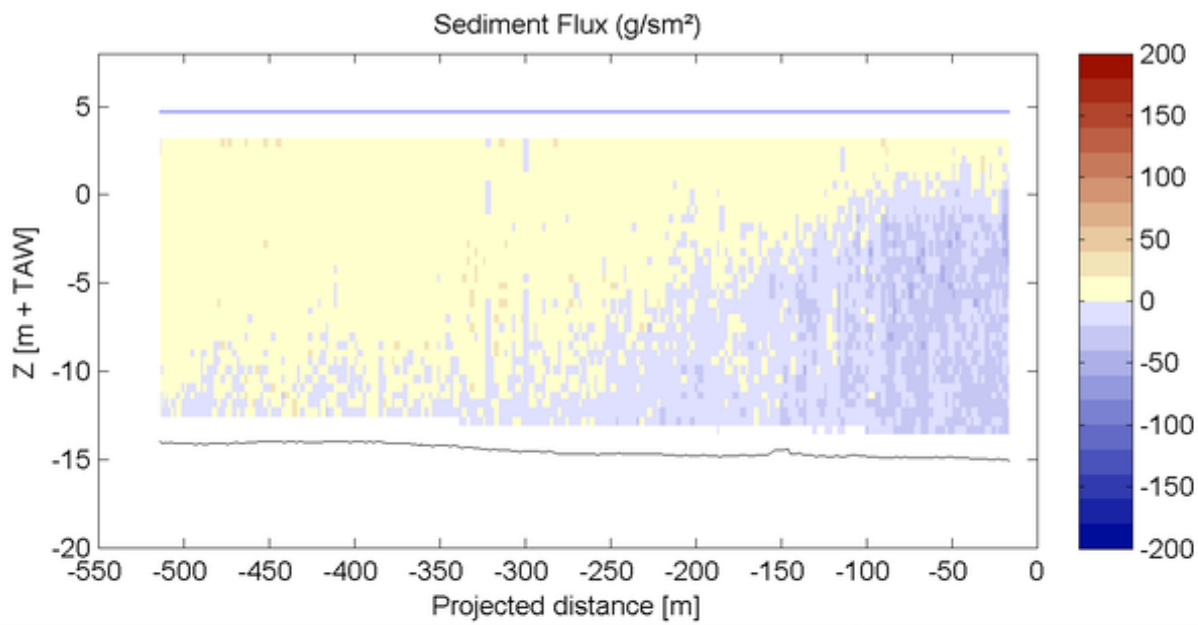
In association with :

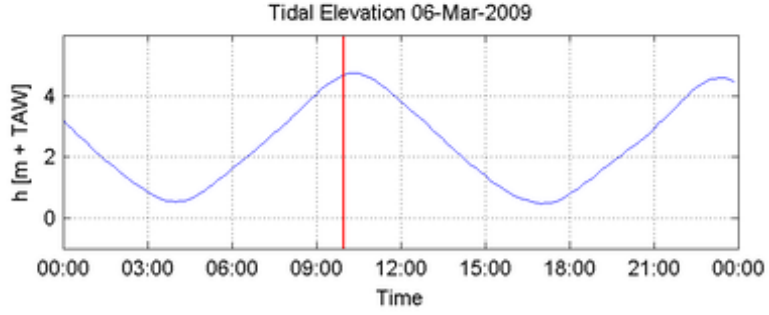
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3048DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
09:56 - 09:59

Time after HW [HH:MM]
-0:21

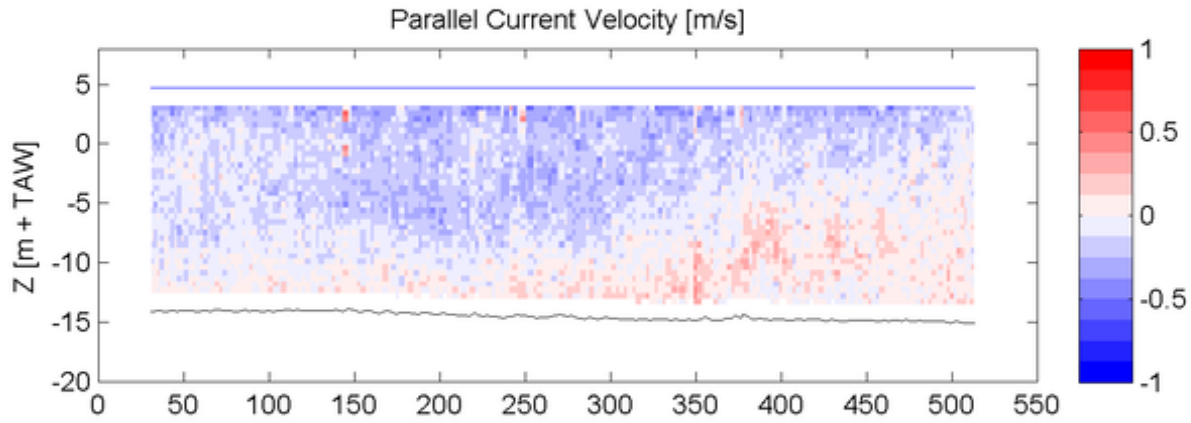
Data Processed by:

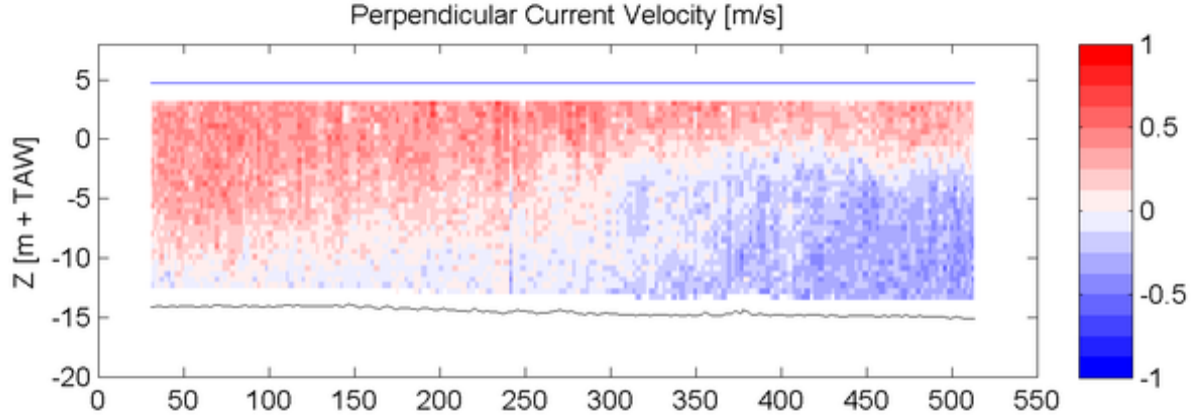
In association with :

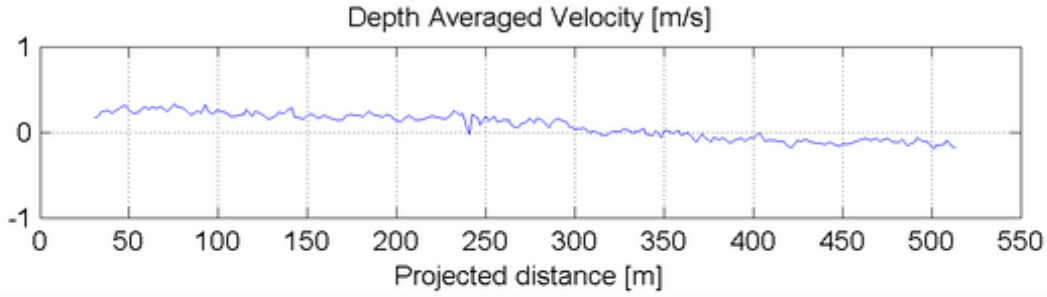
I/RA/11283/08.087/MSA

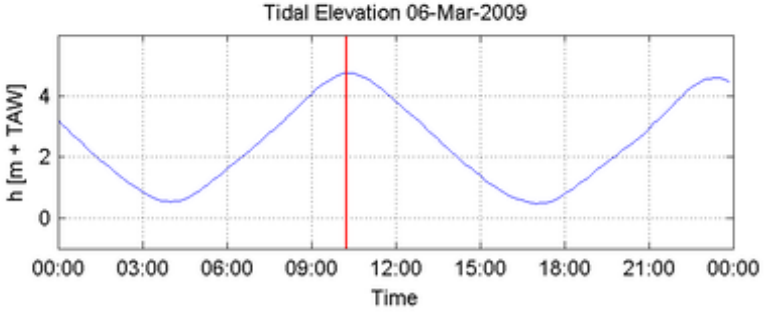
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3050DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
10:13 - 10:15

Time after HW [HH:MM]
-0:05

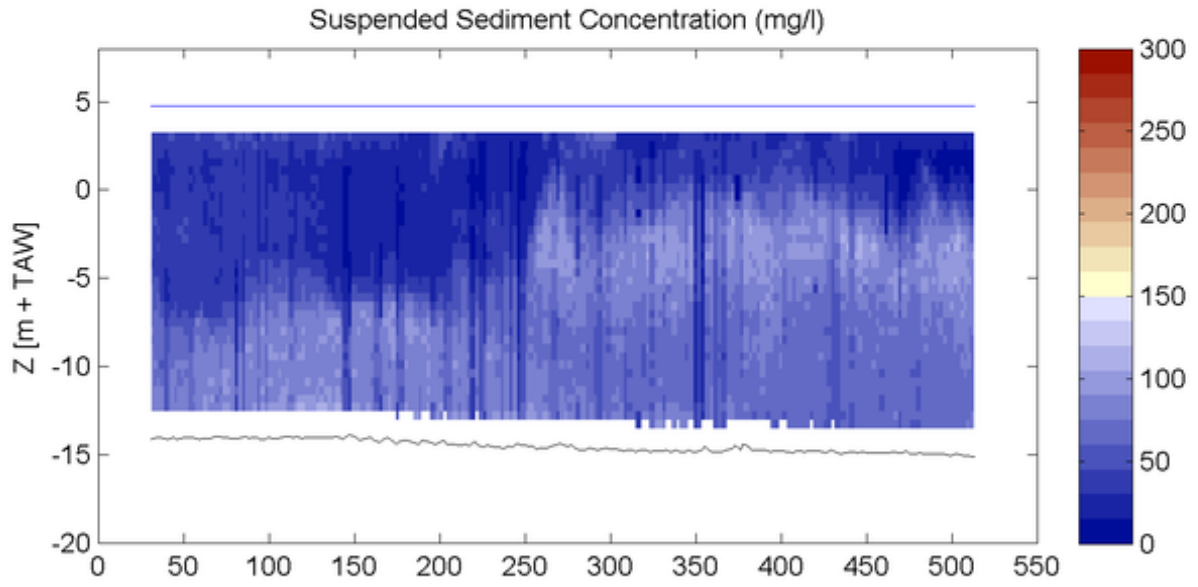
Data Processed by:

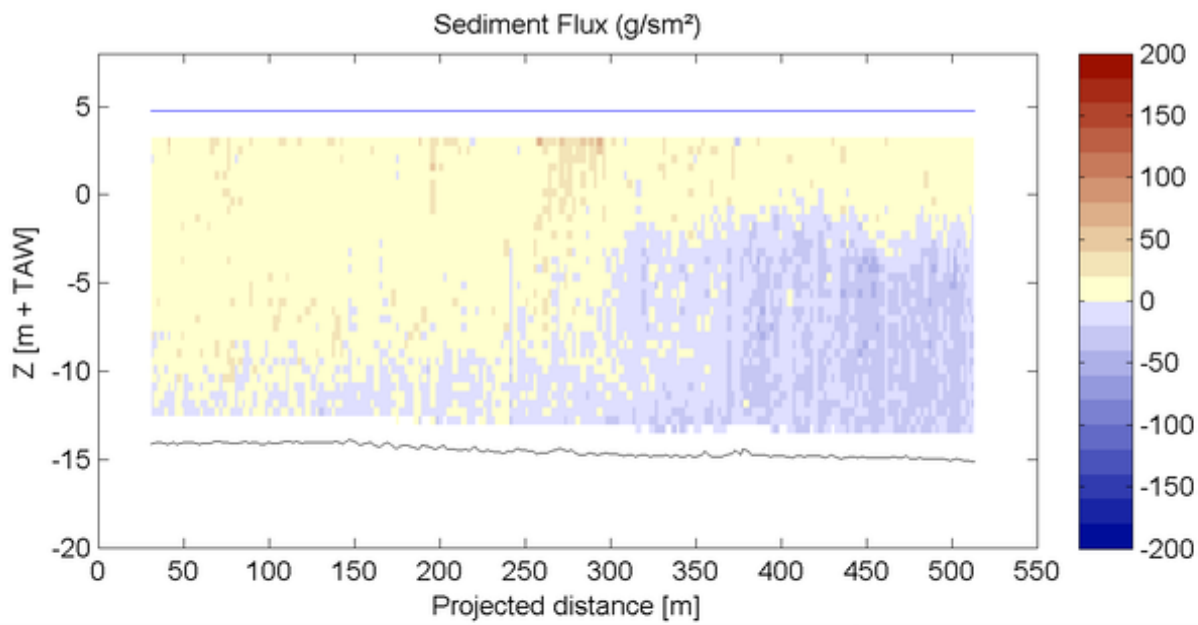
In association with :

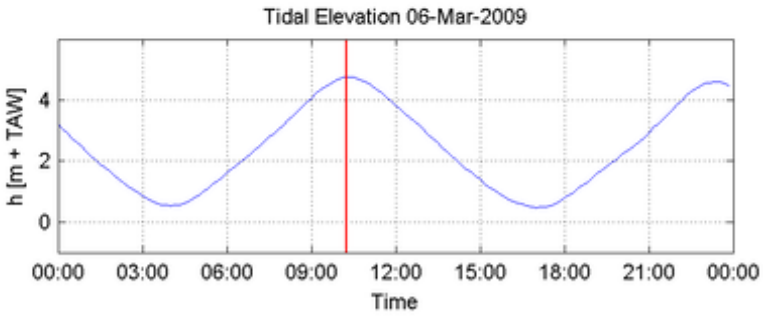
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3050DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
10:13 - 10:15

Time after HW [HH:MM]
-0:05

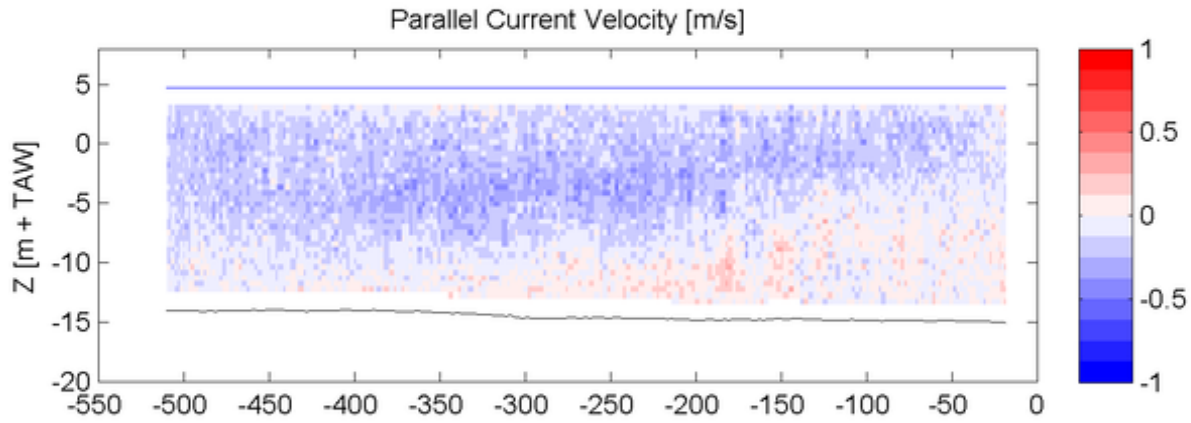
Data Processed by:

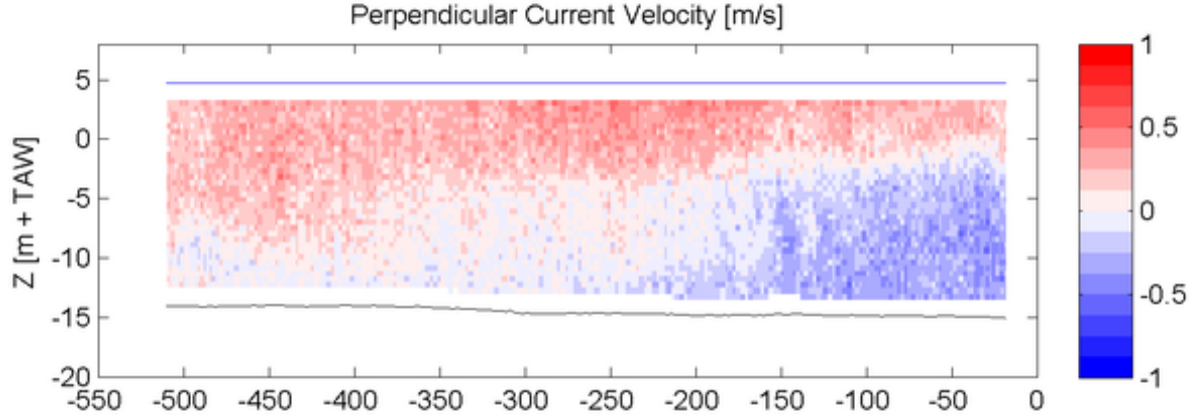
In association with :

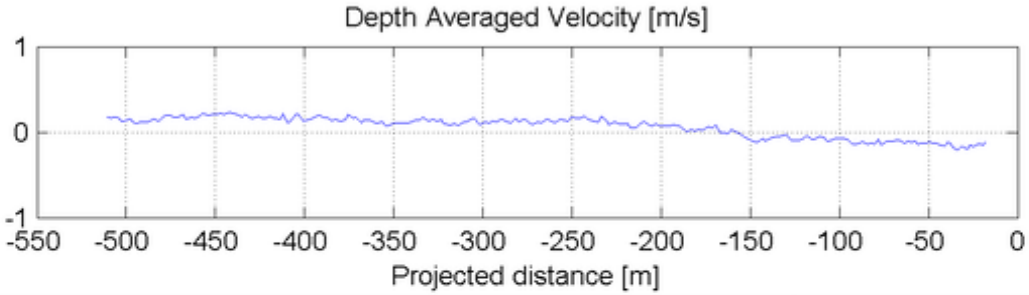
I/RA/11283/08.087/MSA

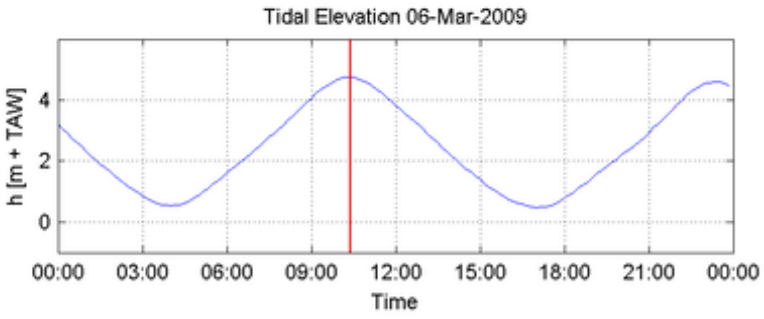
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3052DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
10:21 - 10:24

Time after HW [HH:MM]
0:02

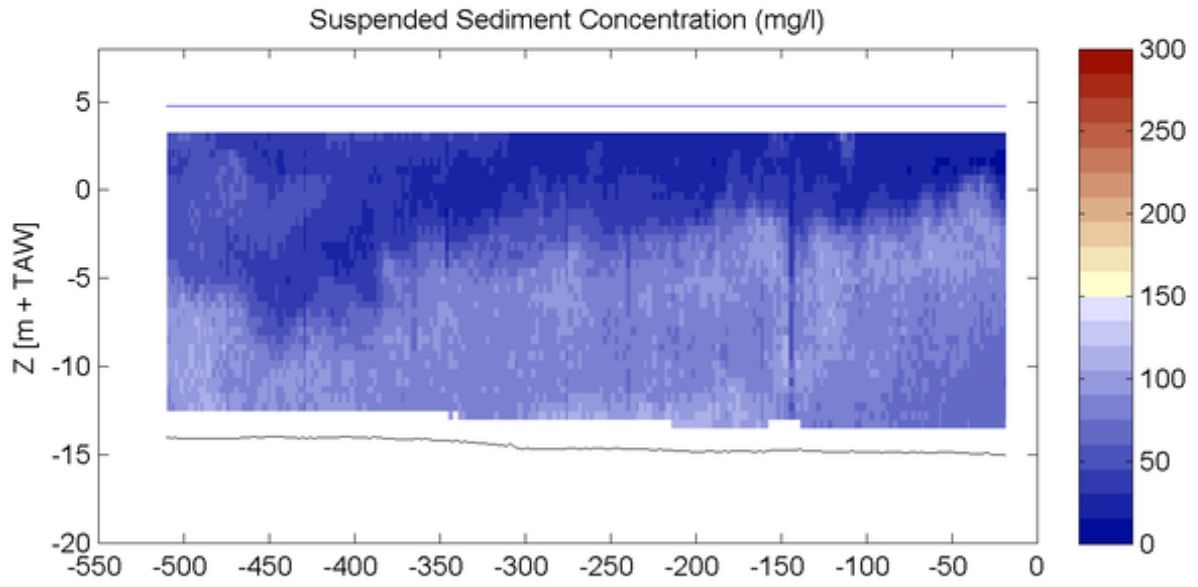
Data Processed by:

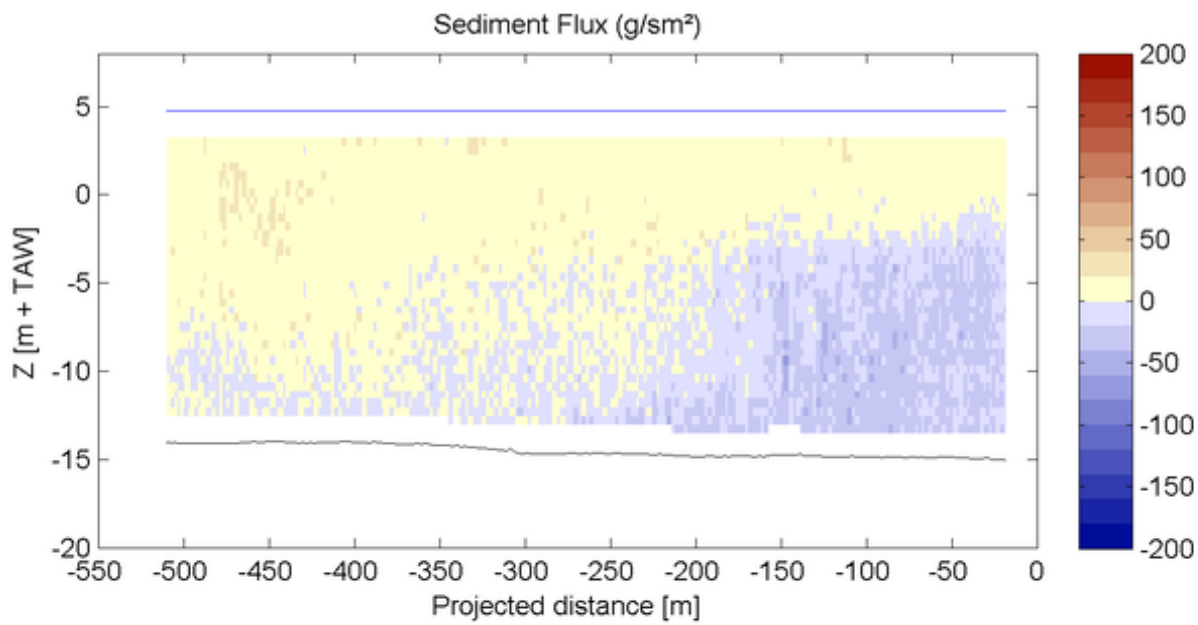
In association with :

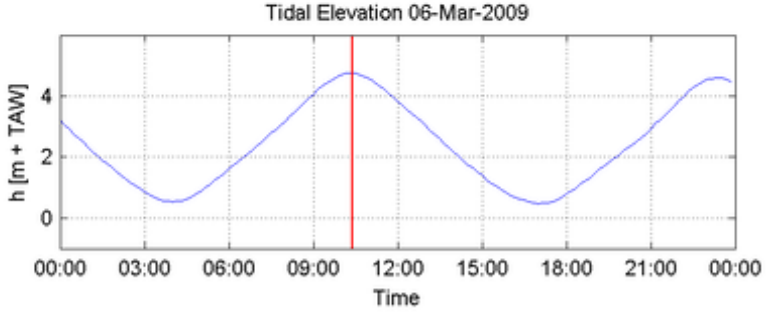
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3052DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

10:21 - 10:24

Time after HW [HH:MM]

0:02

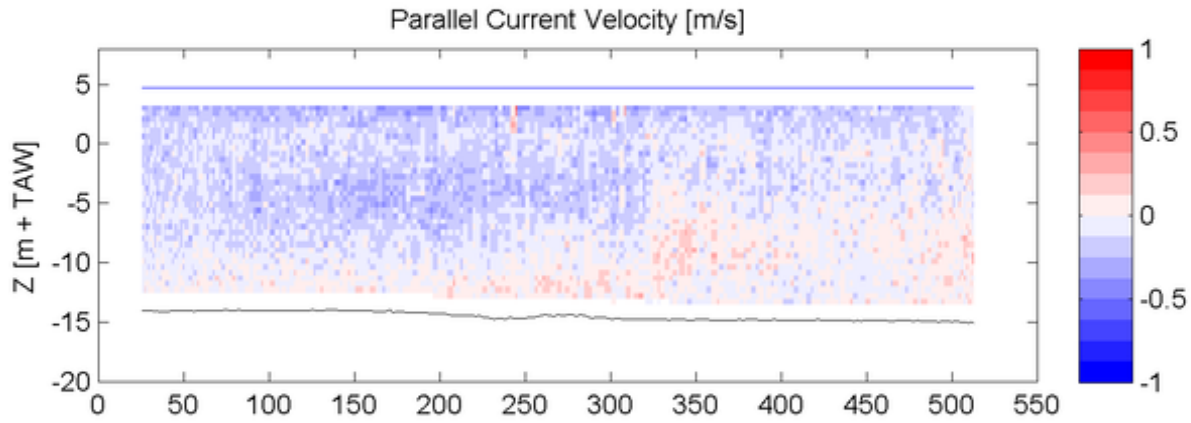
Data Processed by:

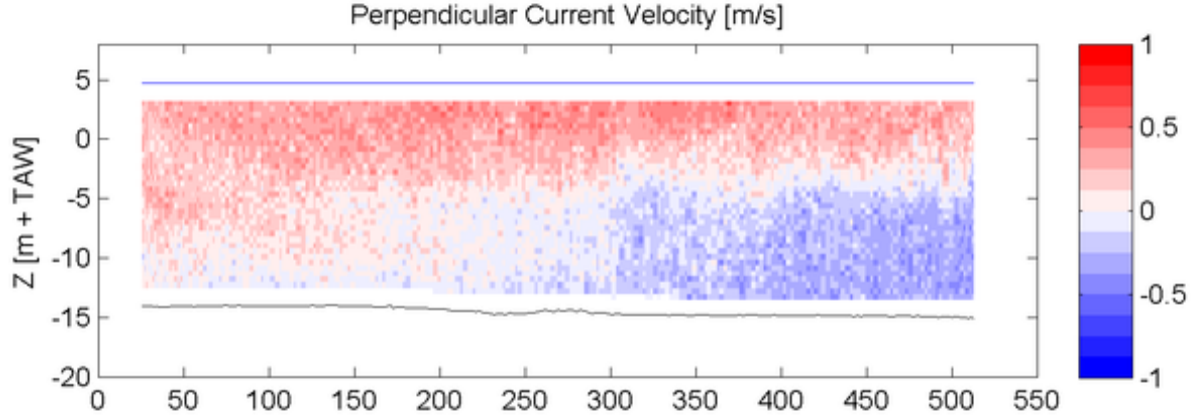
In association with :

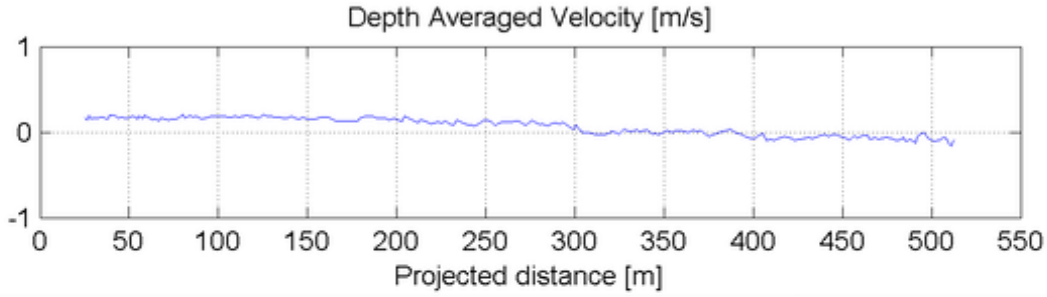
I/RA/11283/08.087/MSA

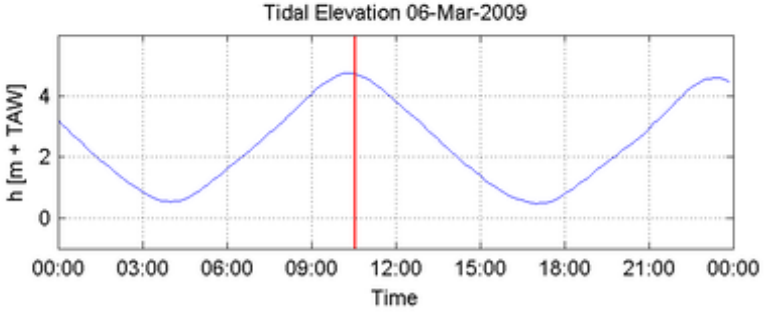
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3054DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
10:31 - 10:34

Time after HW [HH:MM]
0:12

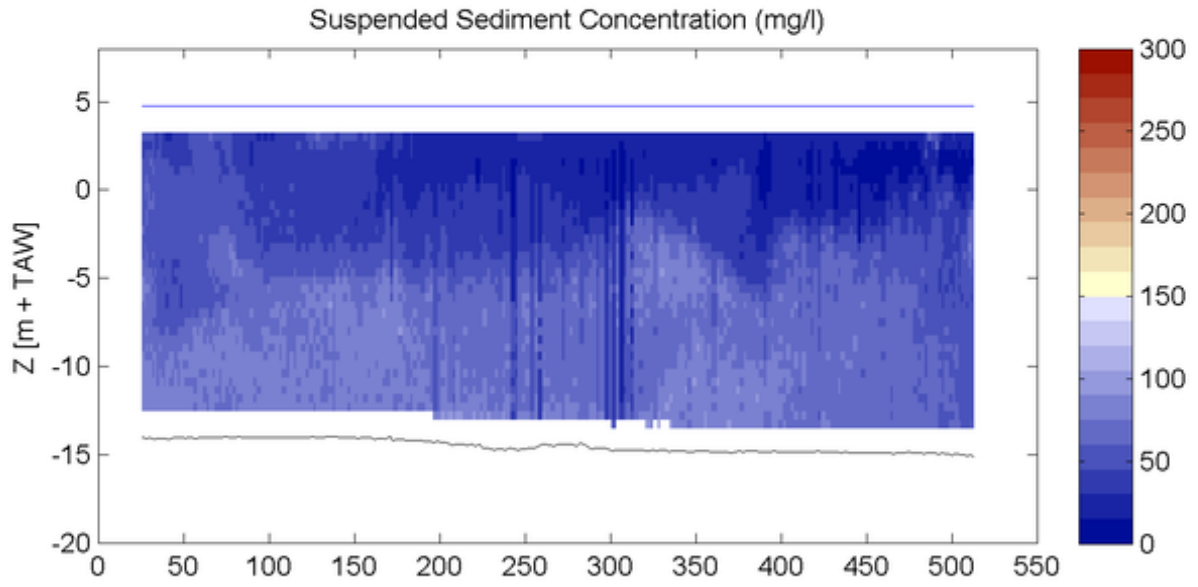
Data Processed by:

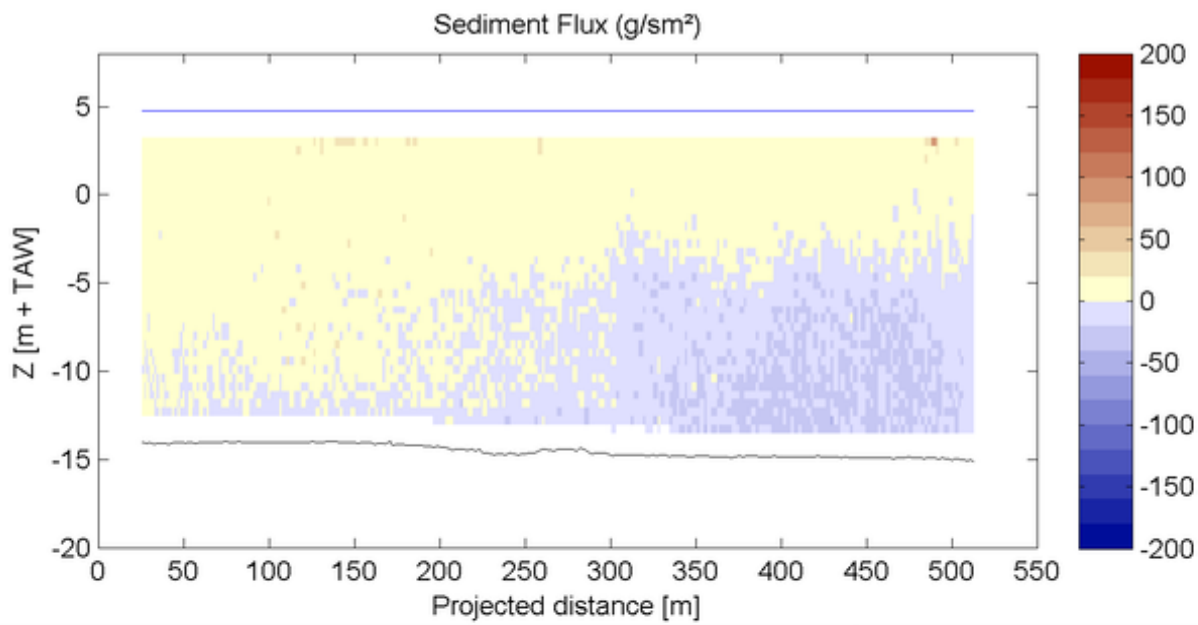
In association with :

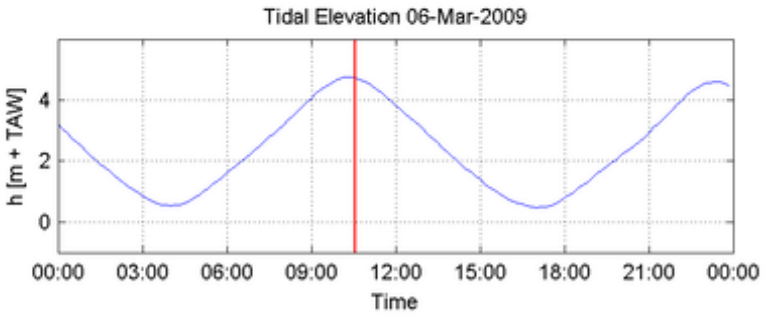
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3054DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
10:31 - 10:34

Time after HW [HH:MM]
0:12

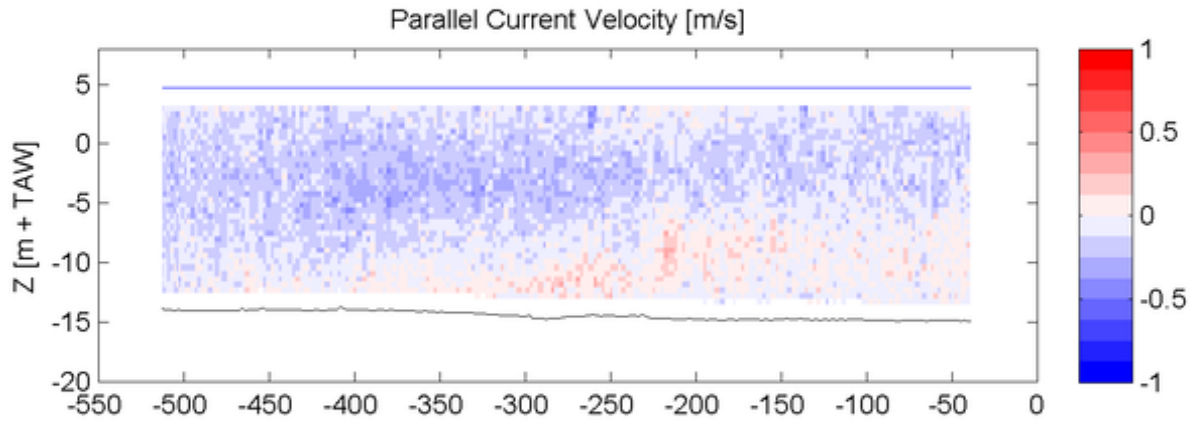
Data Processed by:

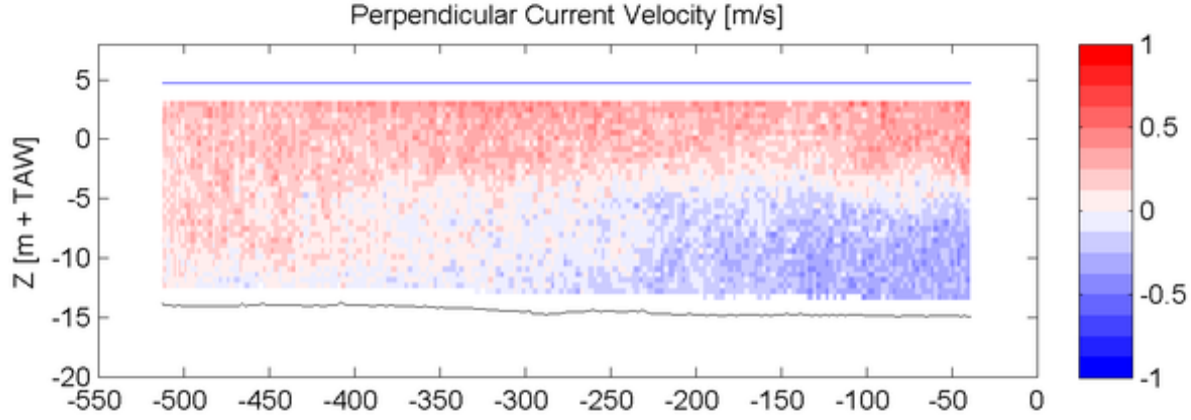
In association with :

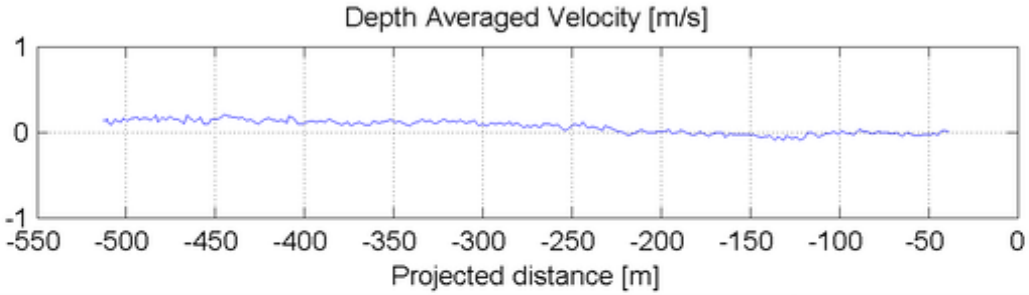
I/RA/11283/08.087/MSA

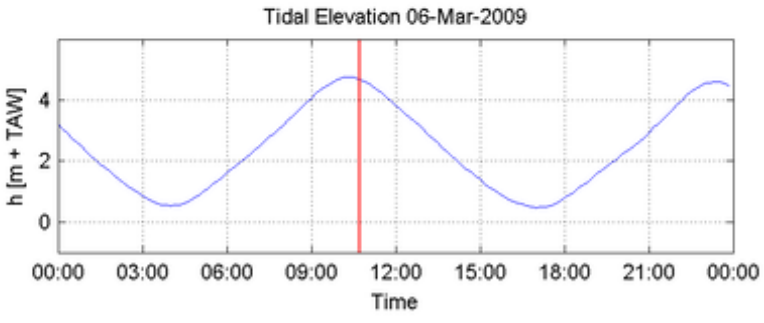
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3056DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
10:41 - 10:43

Time after HW [HH:MM]
0:22

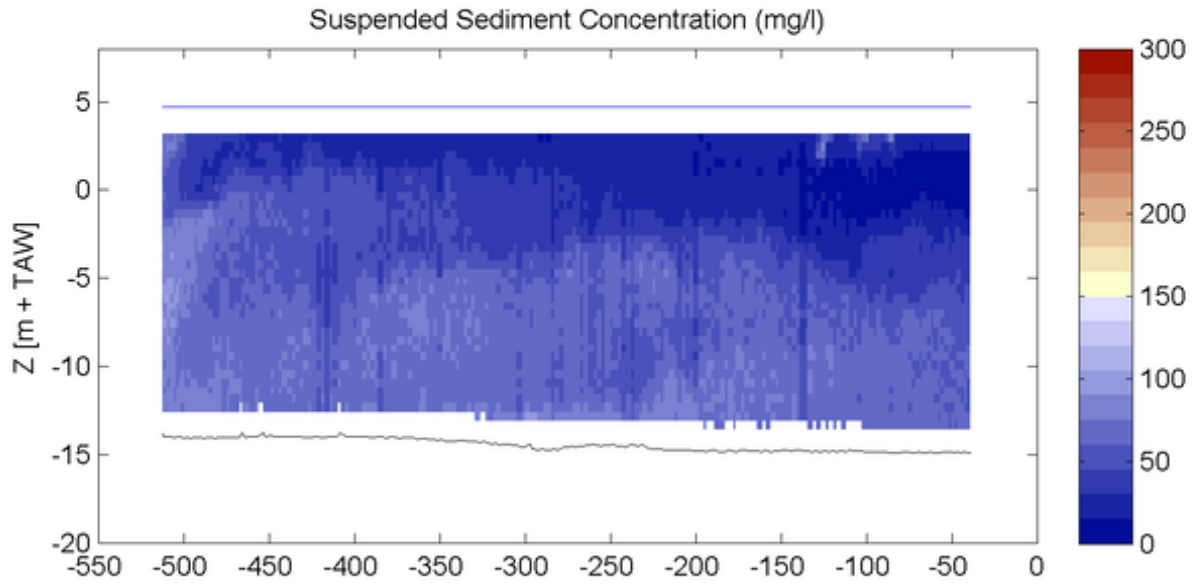
Data Processed by:

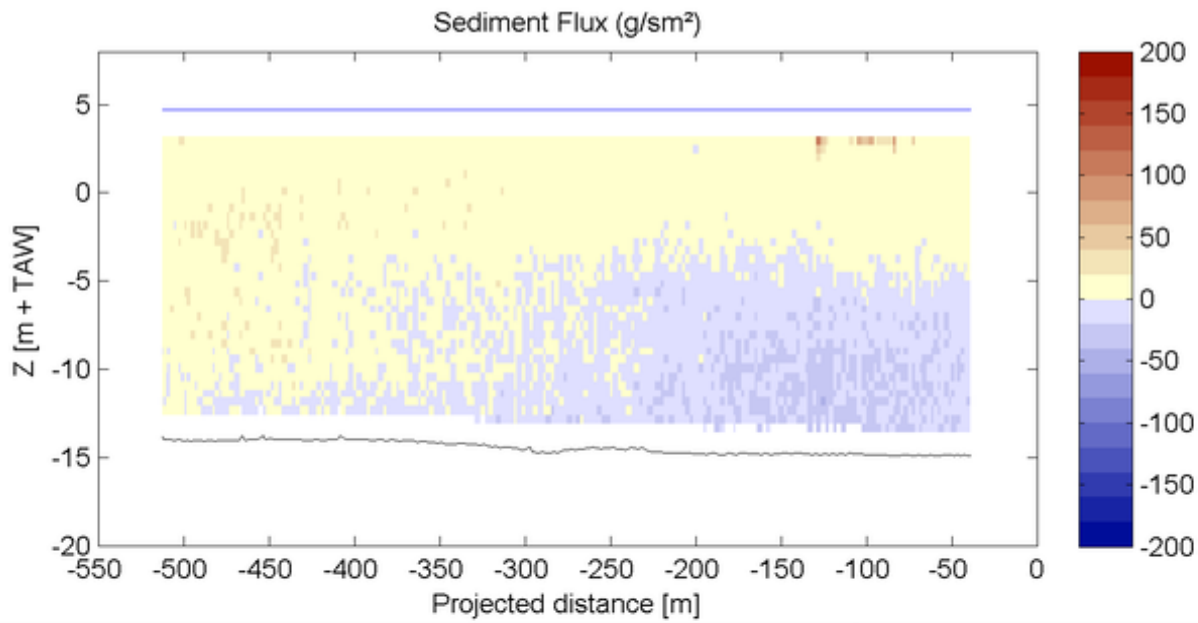
In association with :

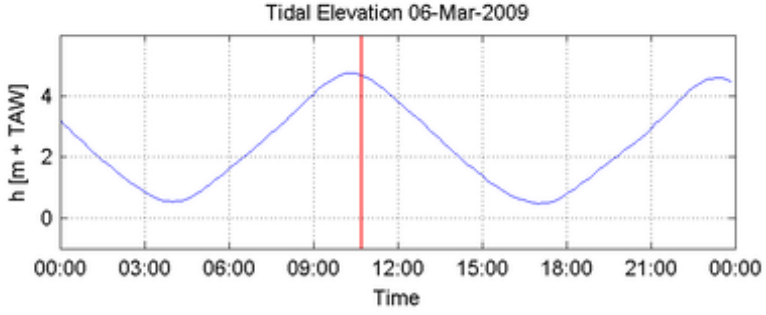
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3056DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
10:41 - 10:43

Time after HW [HH:MM]
0:22

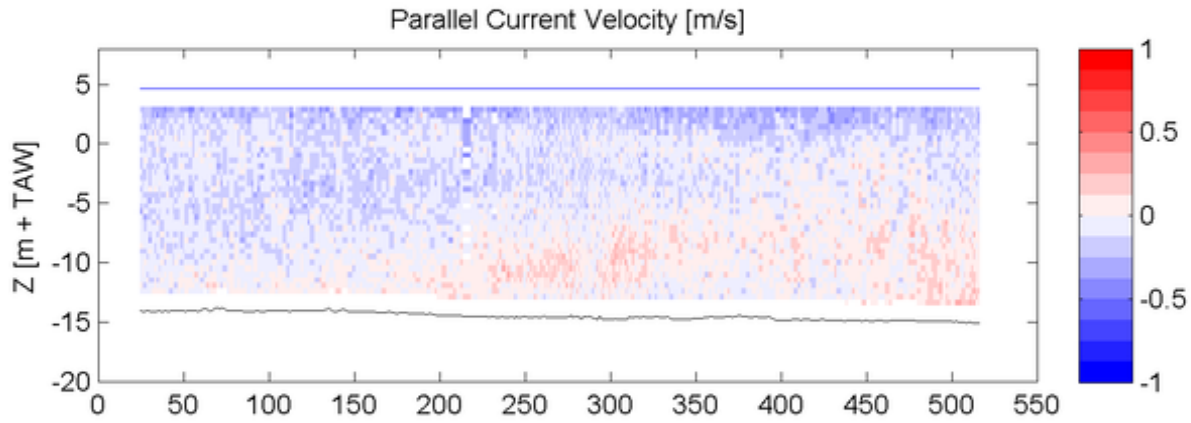
Data Processed by:

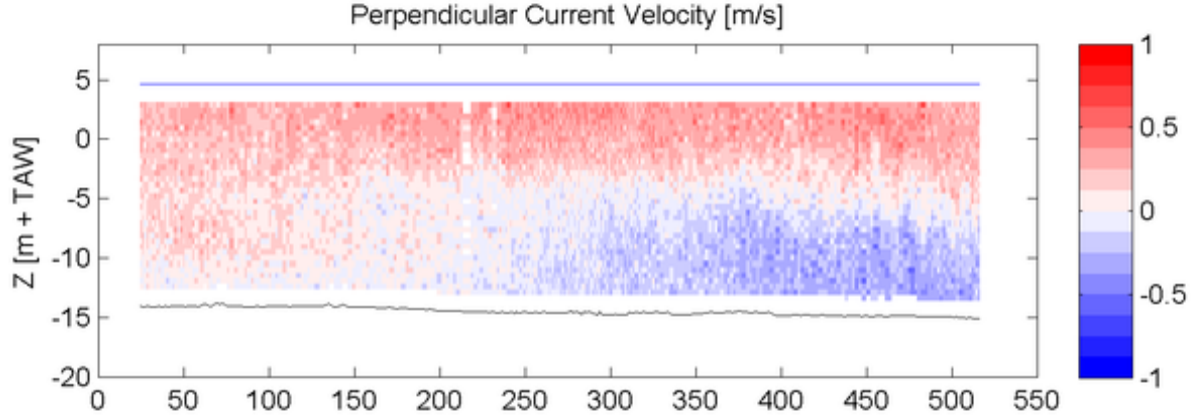
In association with :

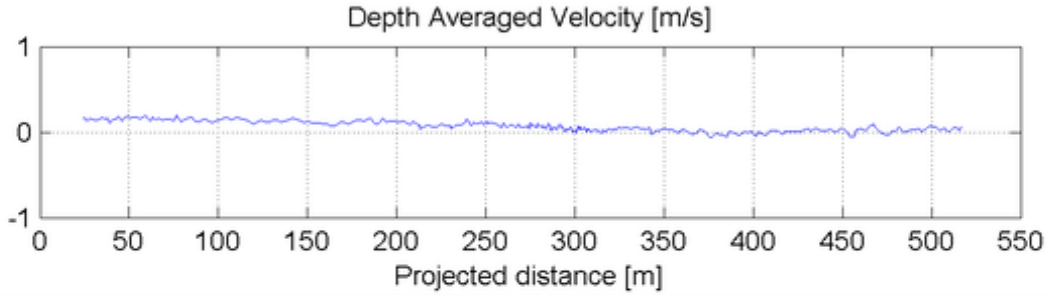
I/RA/11283/08.087/MSA

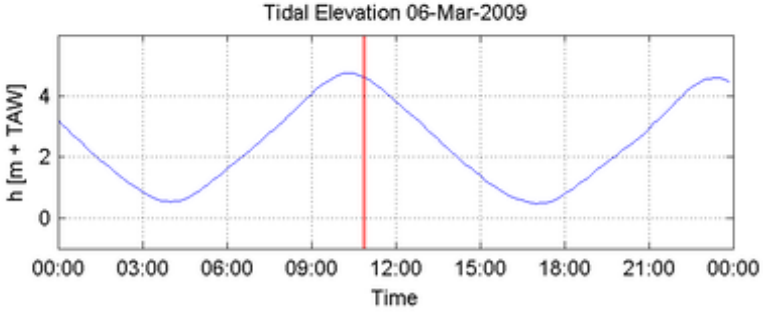
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3058DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
10:49 - 10:54

Time after HW [HH:MM]
0:32

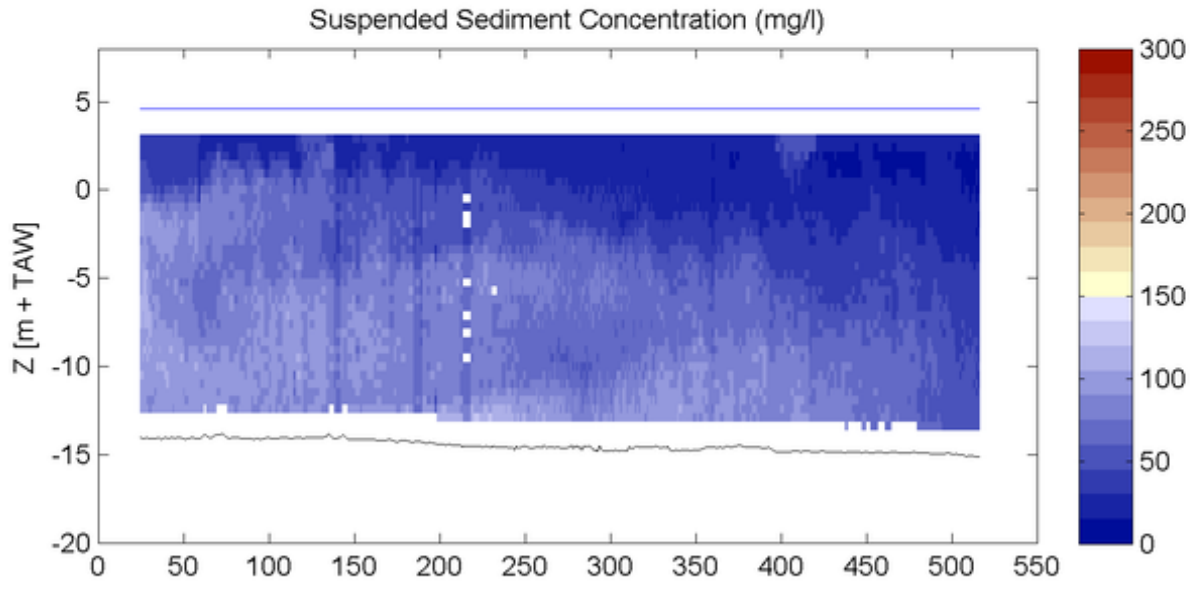
Data Processed by:

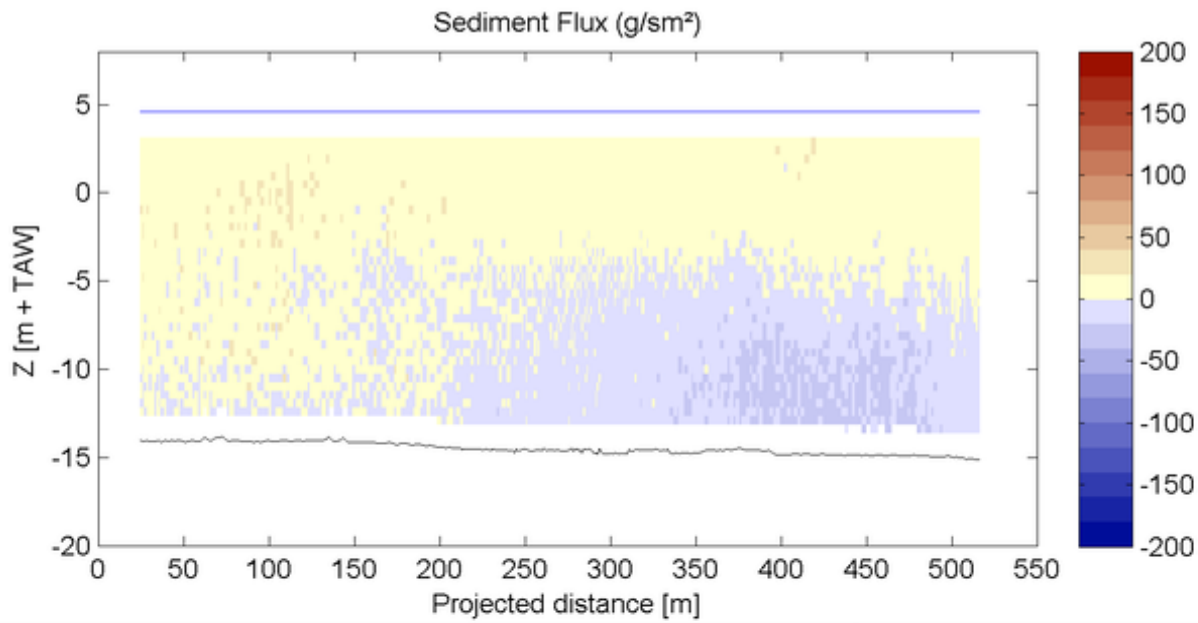
In association with :

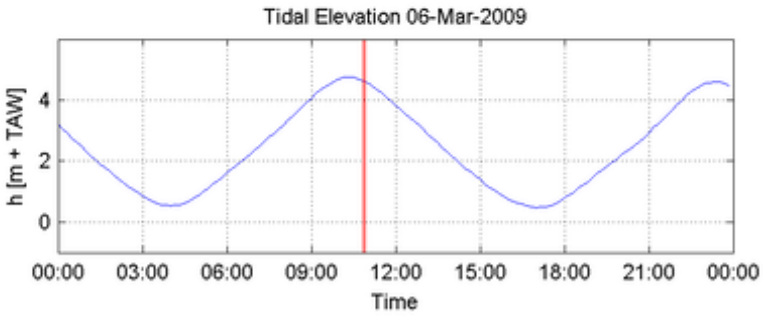
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3058DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
10:49 - 10:54

Time after HW [HH:MM]
0:32

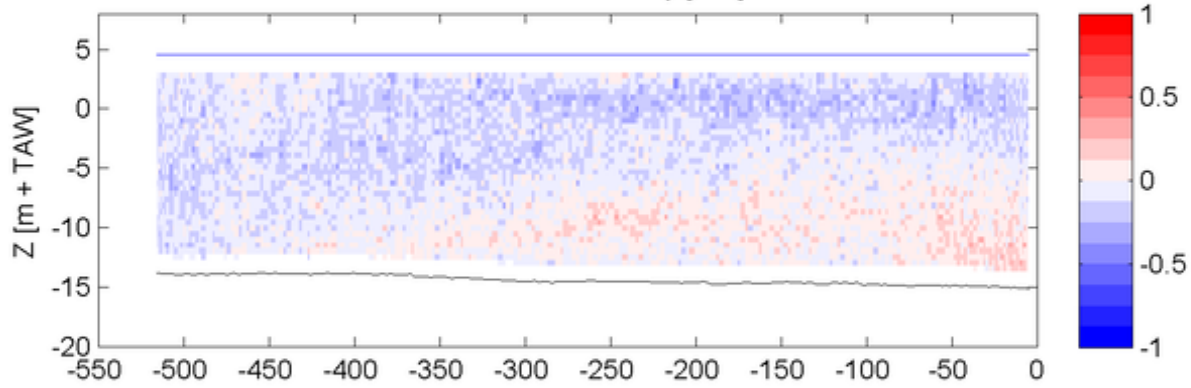
Data Processed by:

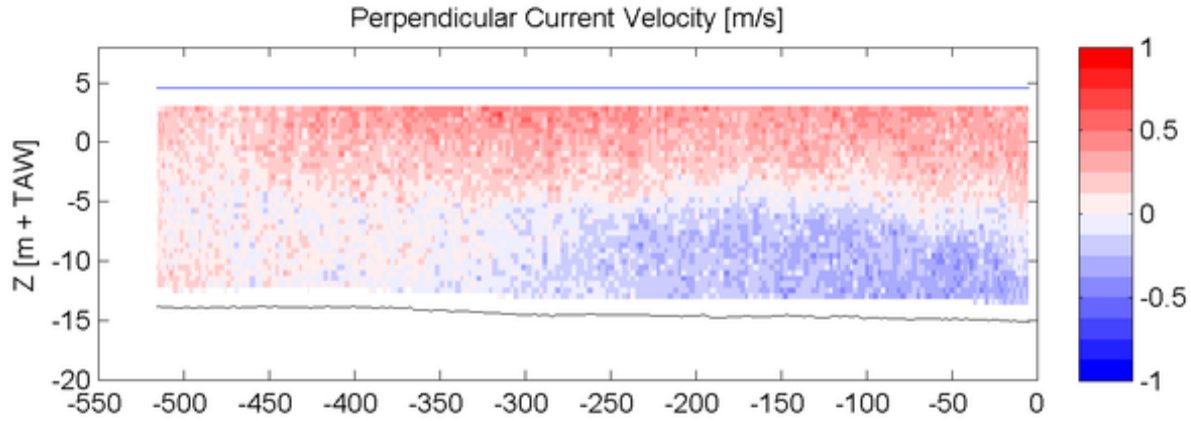
In association with :

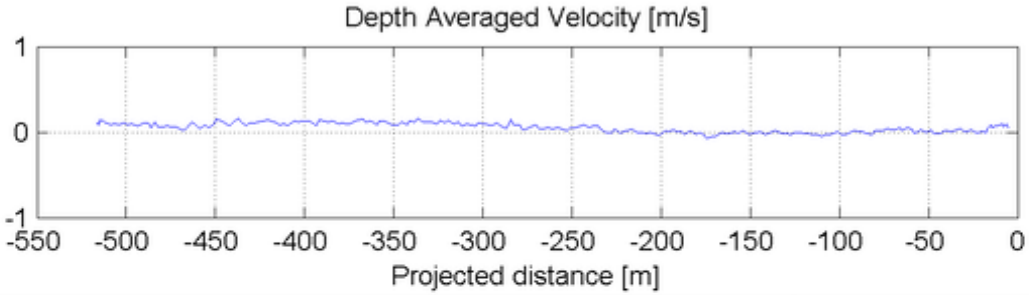
I/RA/11283/08.087/MSA

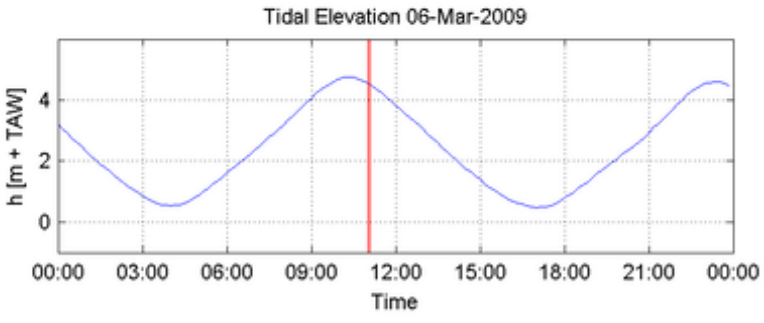
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3060DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:02 - 11:05

Time after HW [HH:MM]
0:43

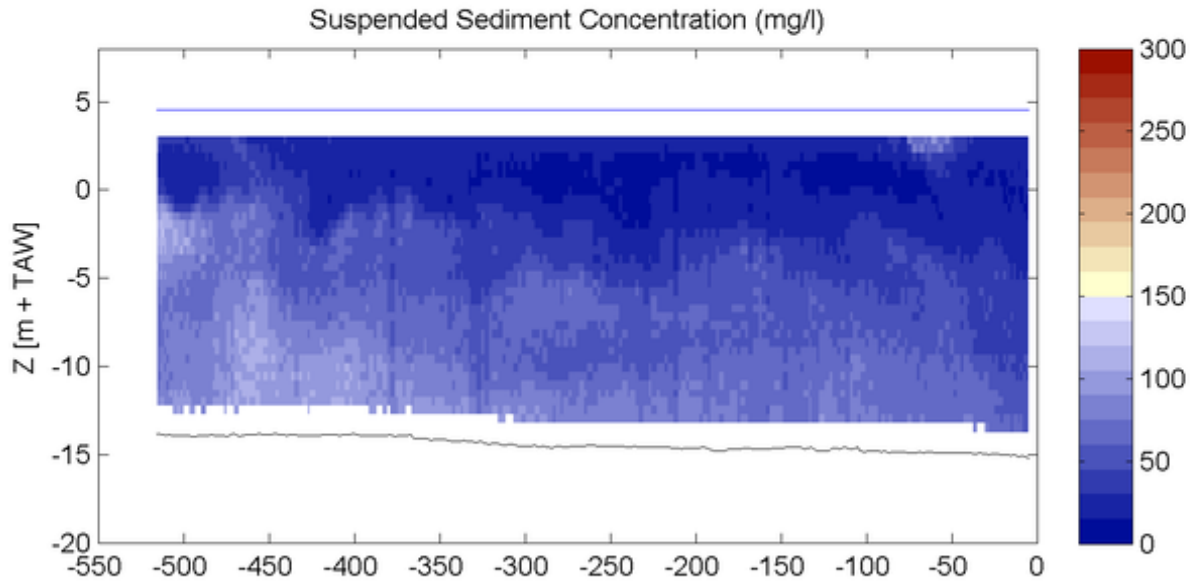
Data Processed by:

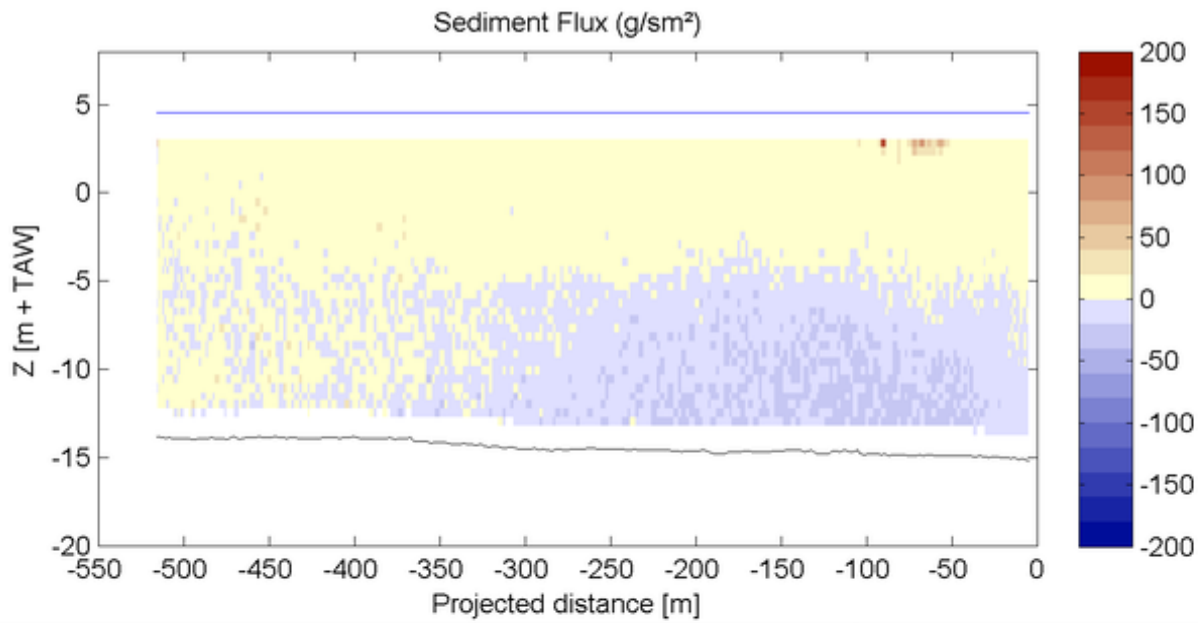
In association with :

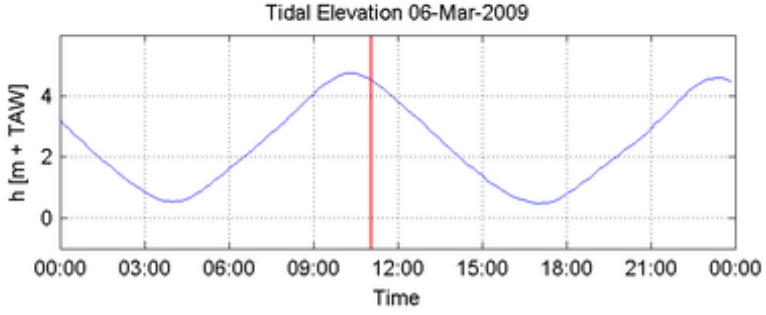
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3060DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:02 - 11:05

Time after HW [HH:MM]
0:43

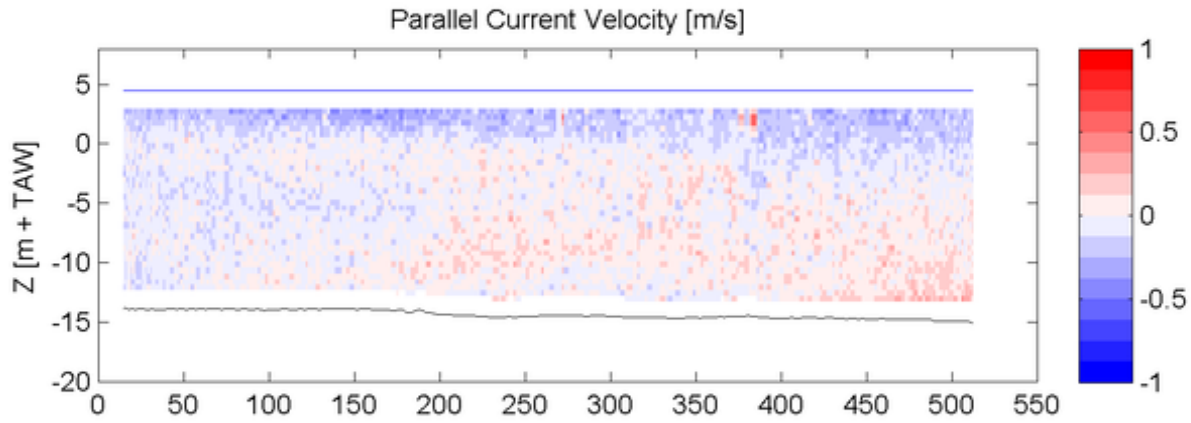
Data Processed by:

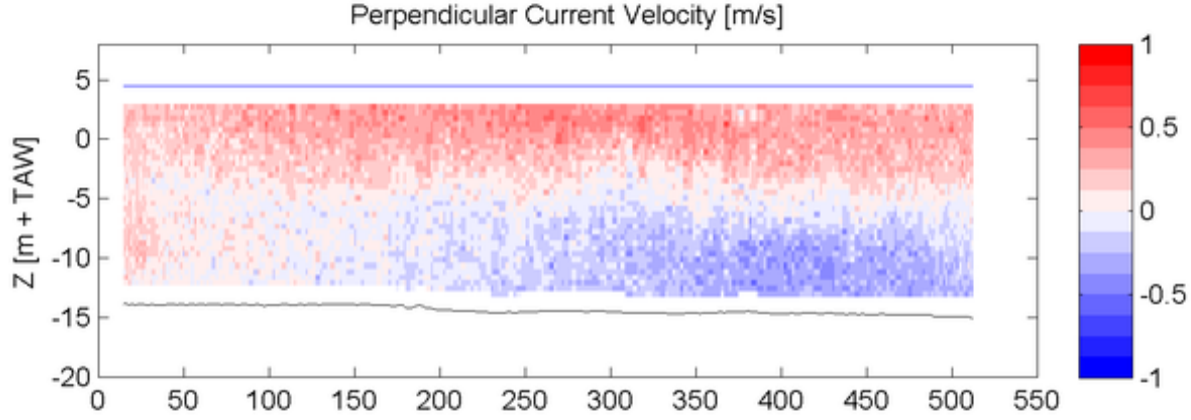
In association with :

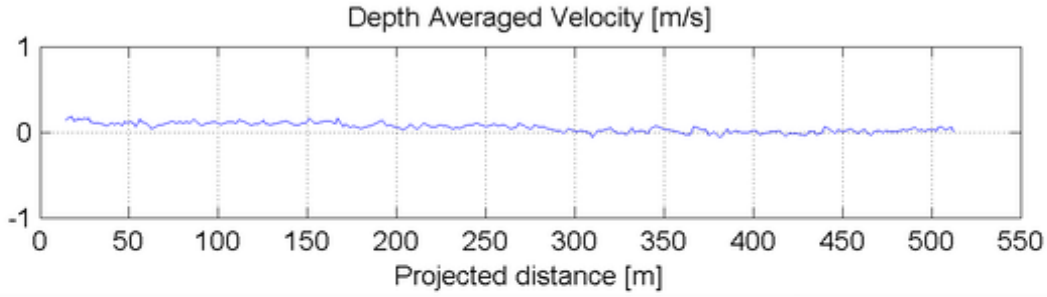
I/RA/11283/08.087/MSA

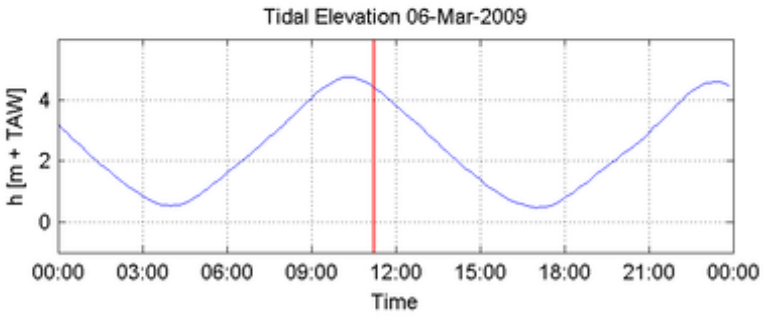
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3062DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:11 - 11:14

Time after HW [HH:MM]
0:53

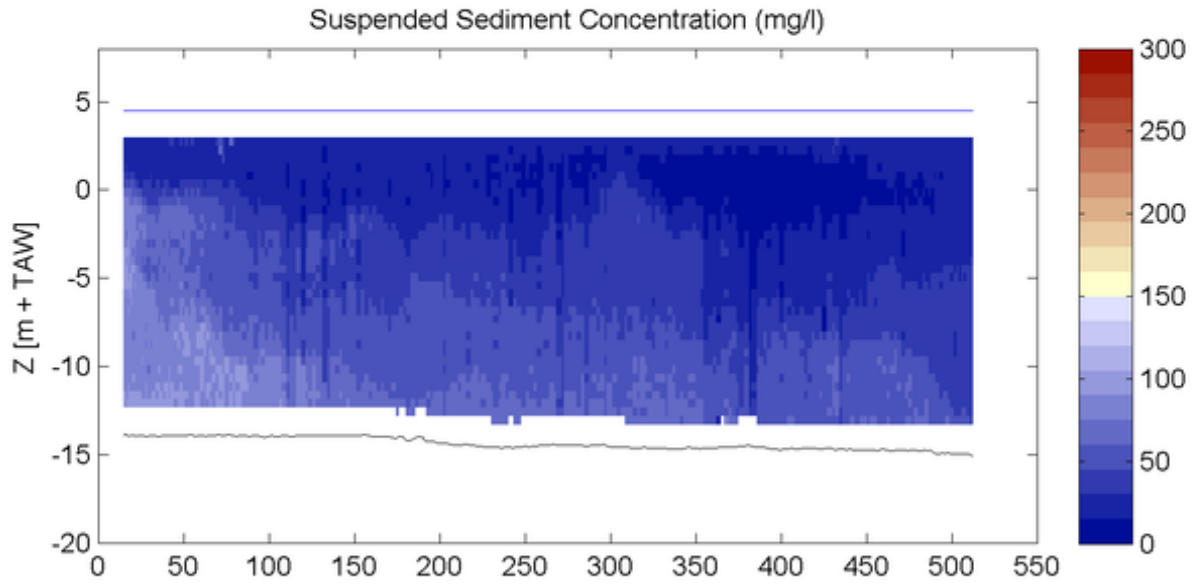
Data Processed by:

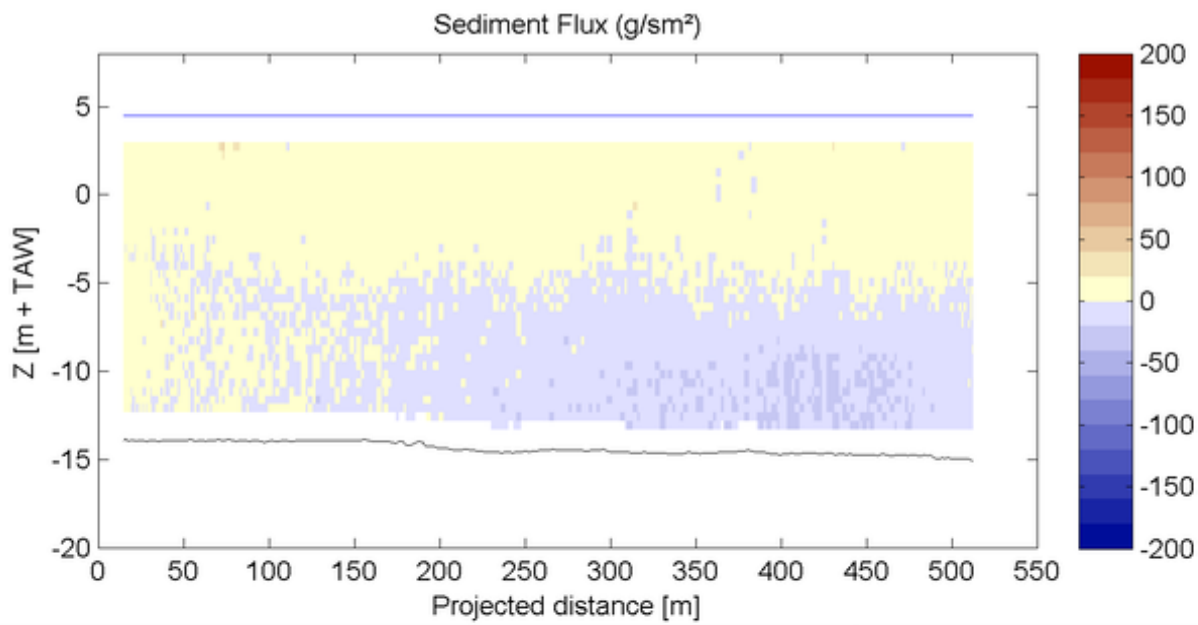
In association with :

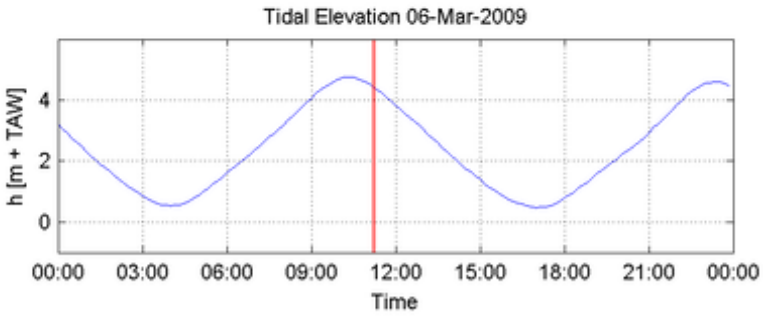
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3062DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:11 - 11:14

Time after HW [HH:MM]
0:53

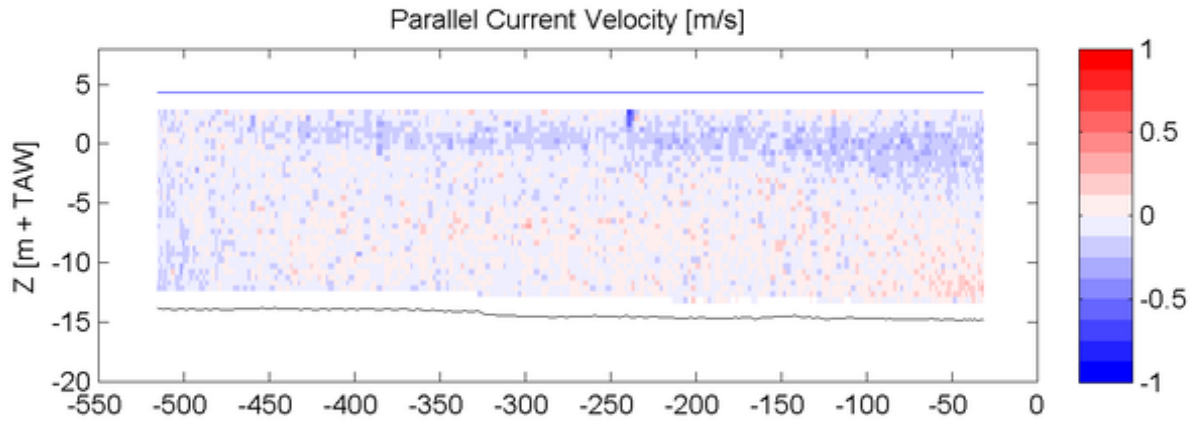
Data Processed by:

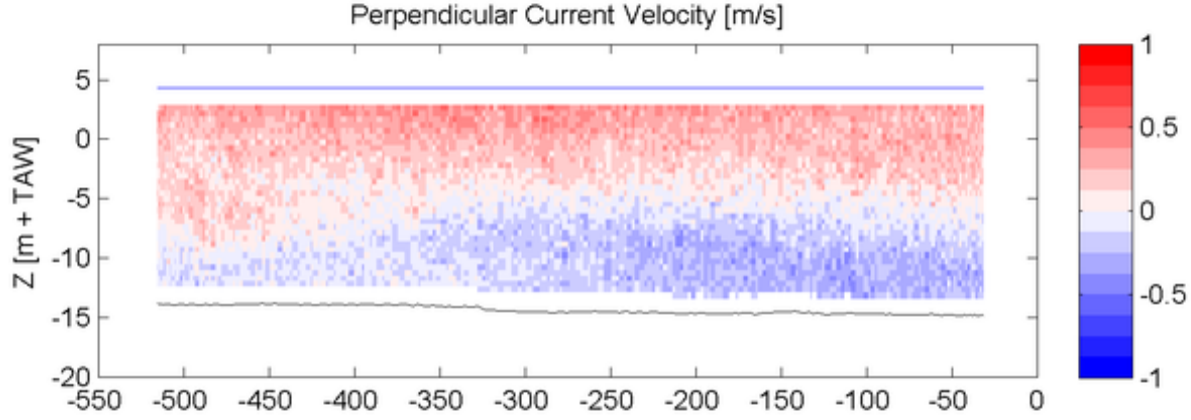
In association with :

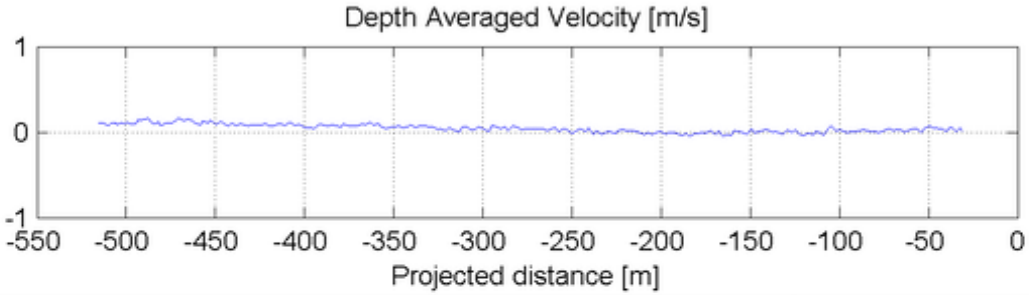
I/RA/11283/08.087/MSA

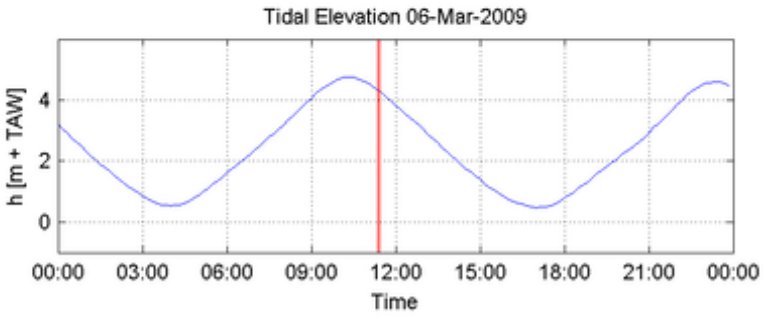
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3064DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:22 - 11:25

Time after HW [HH:MM]
1:04

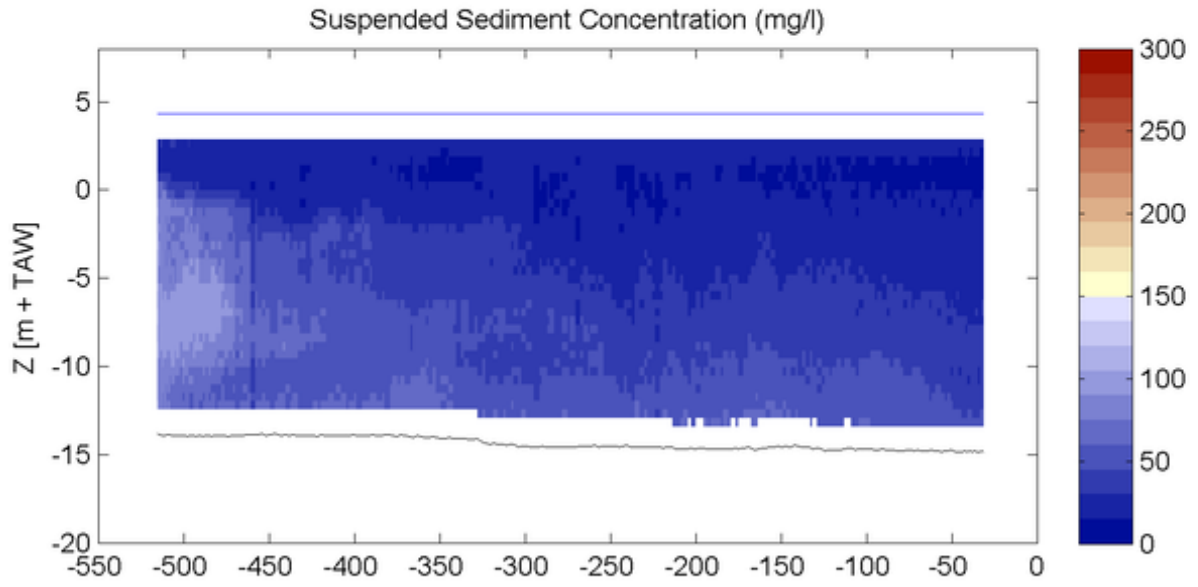
Data Processed by:

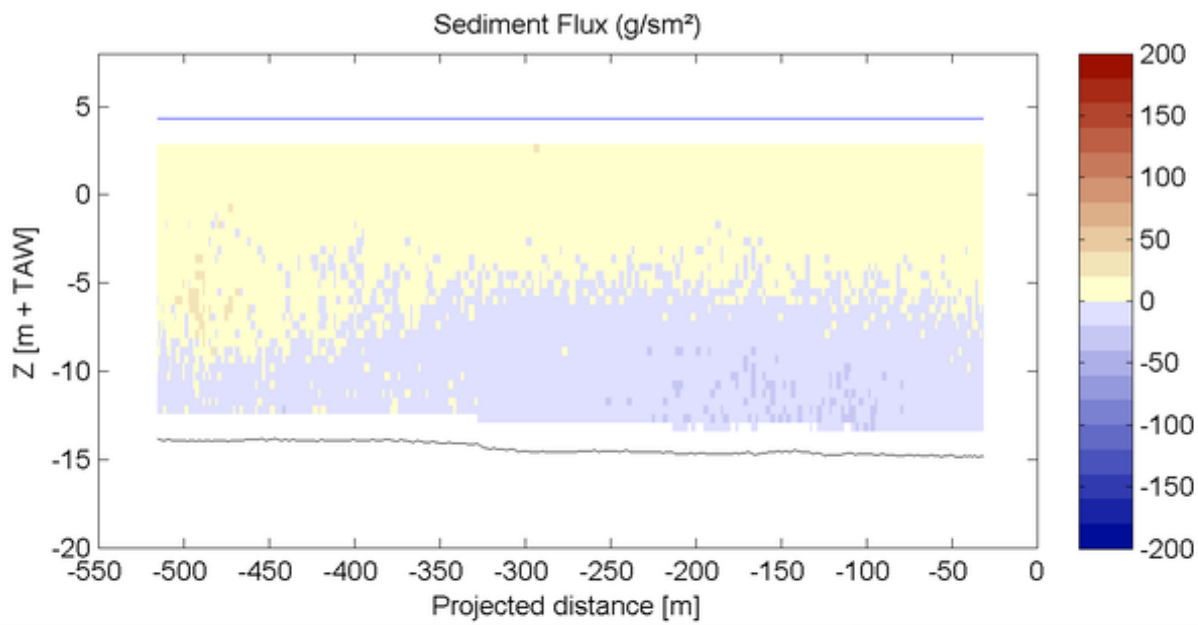
In association with :

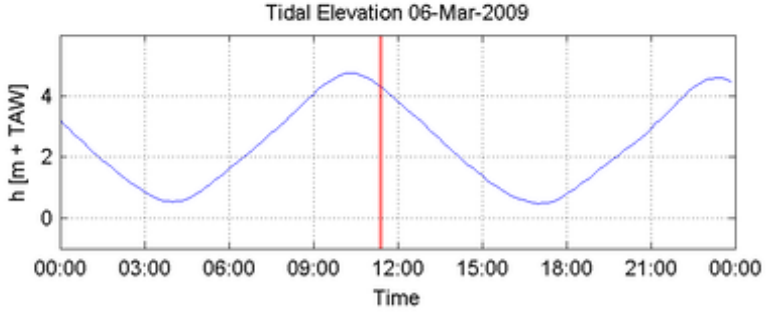
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3064DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:22 - 11:25

Time after HW [HH:MM]
1:04

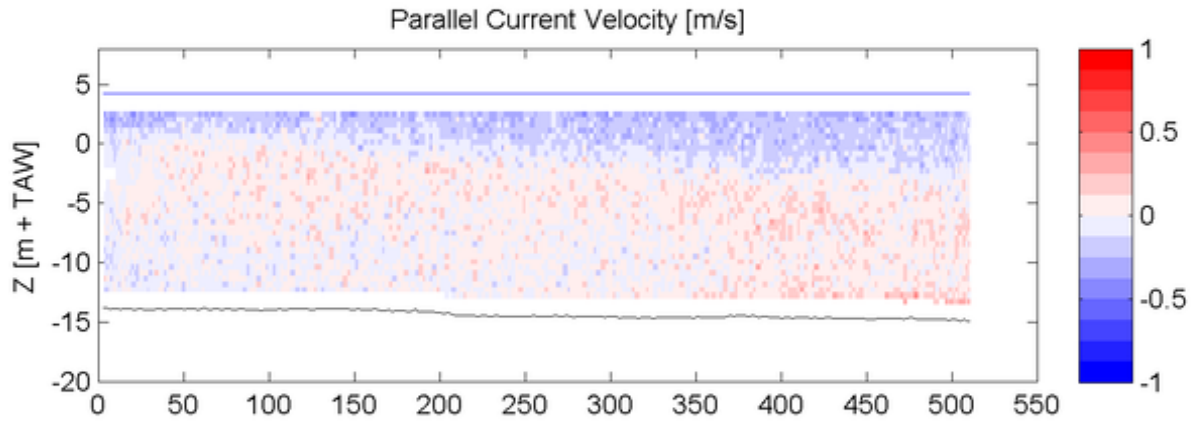
Data Processed by:

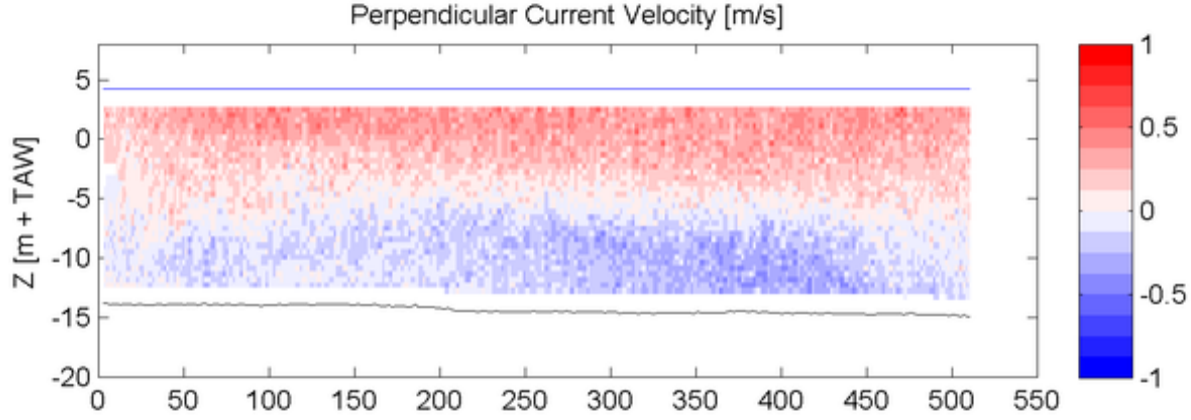
In association with :

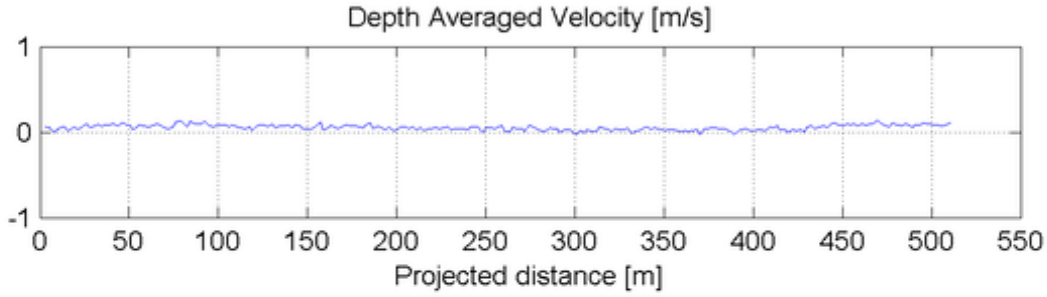
I/RA/11283/08.087/MSA

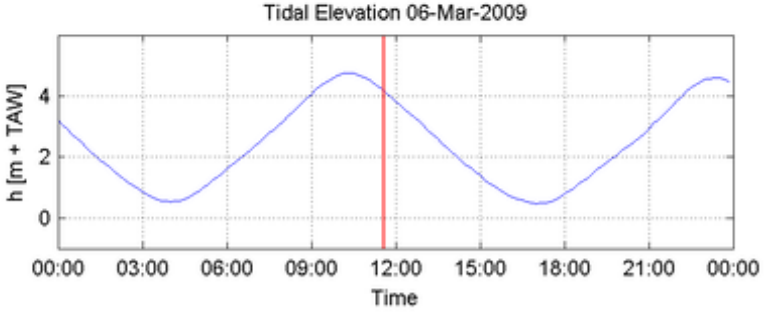
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3066DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:32 - 11:36

Time after HW [HH:MM]
1:14

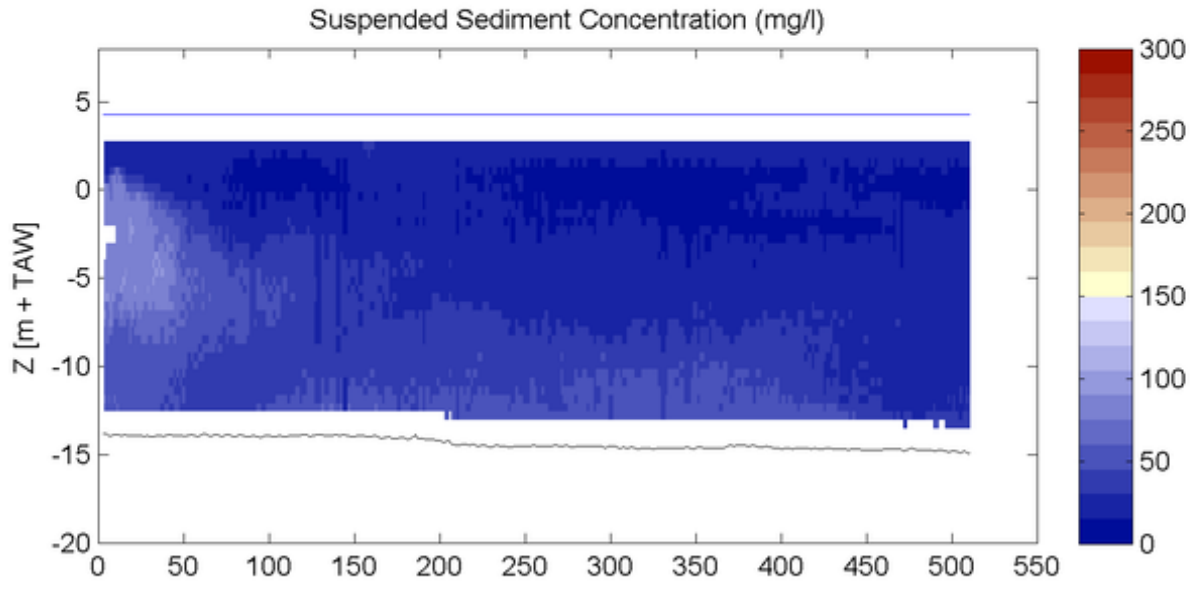
Data Processed by:

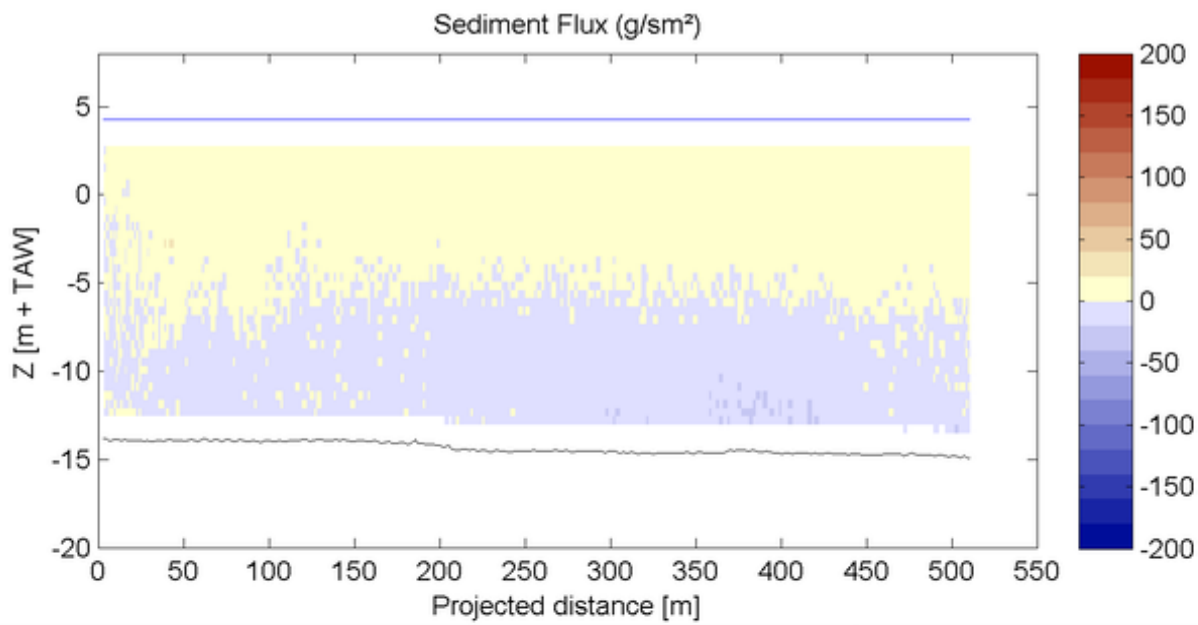
In association with :

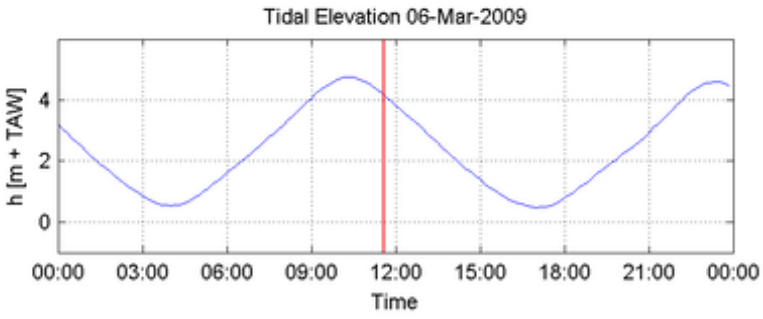
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3066DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:32 - 11:36

Time after HW [HH:MM]
1:14

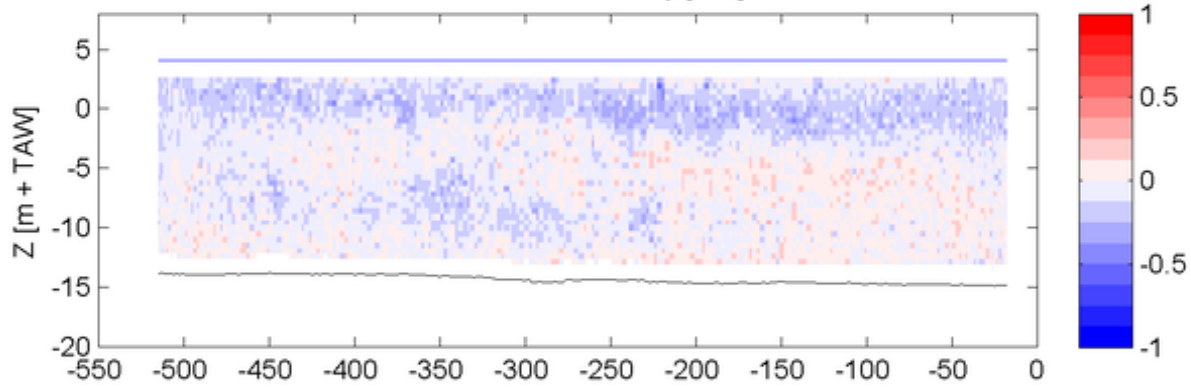
Data Processed by:

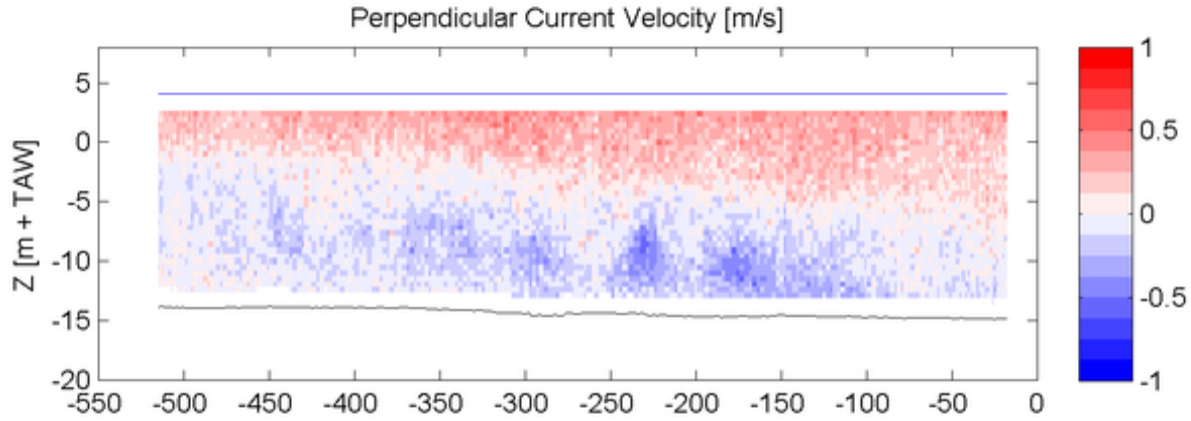
In association with :

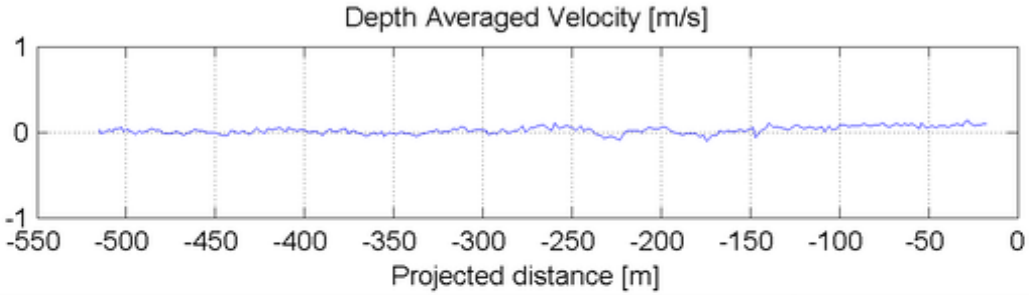
I/RA/11283/08.087/MSA

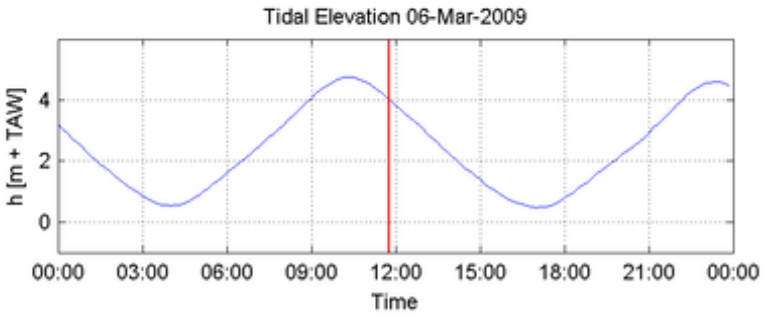
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3068DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:43 - 11:46

Time after HW [HH:MM]
1:25

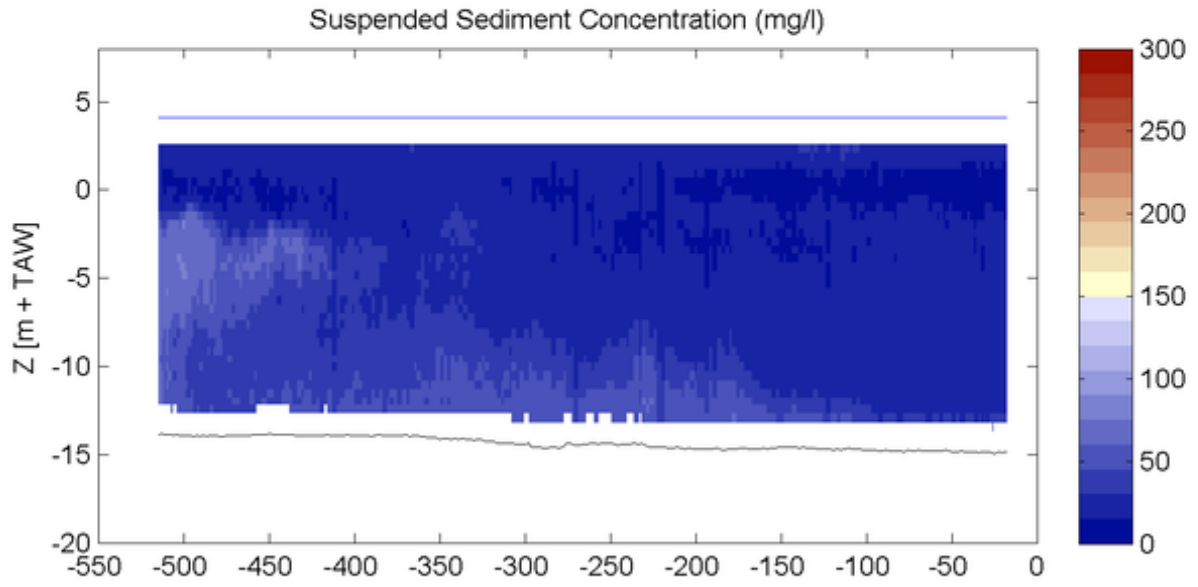
Data Processed by:

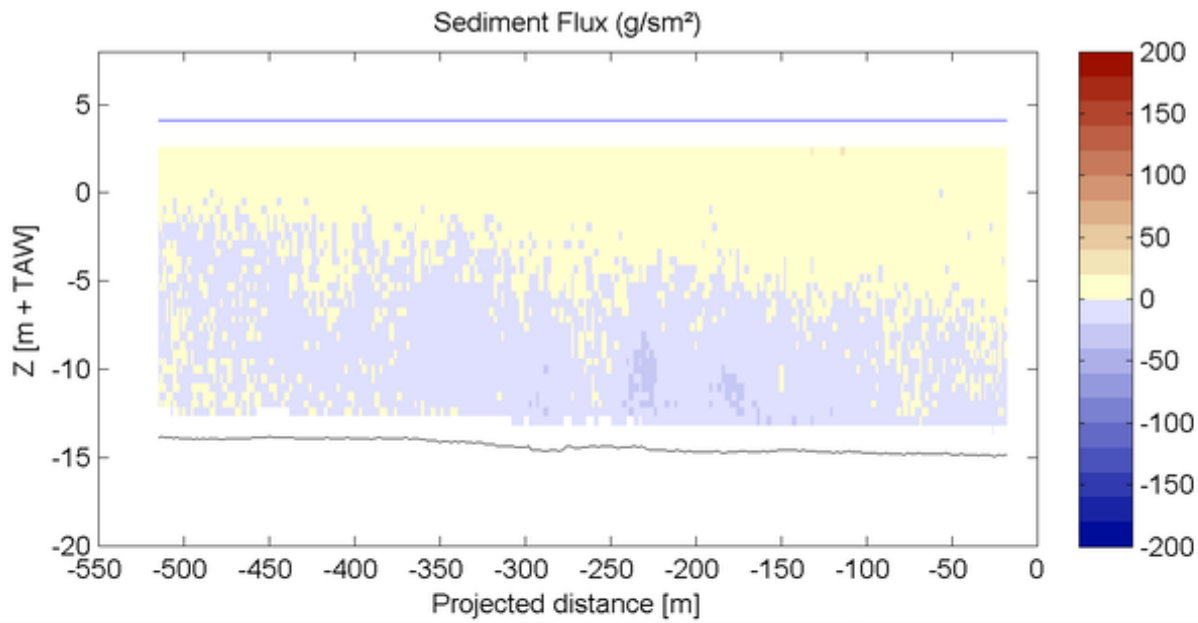
In association with :

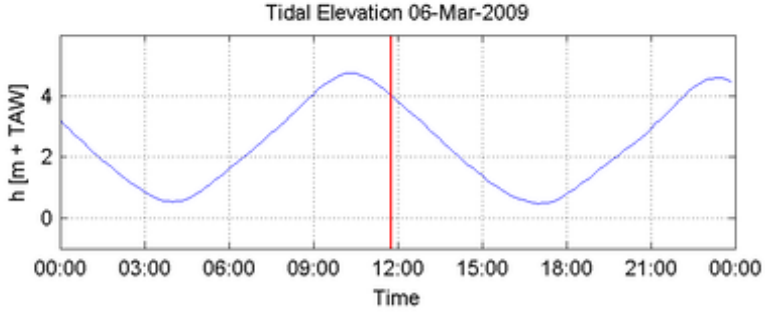
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3068DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:43 - 11:46

Time after HW [HH:MM]
1:25

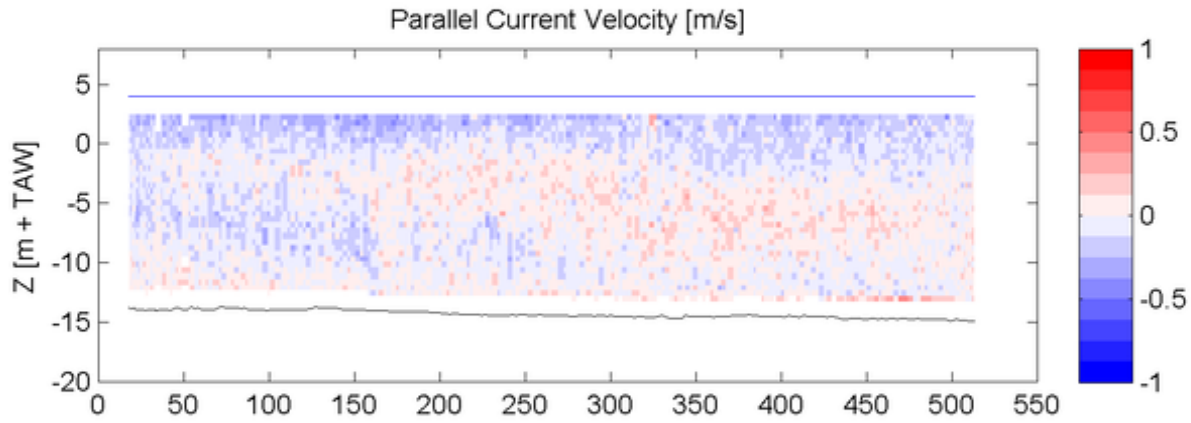
Data Processed by:

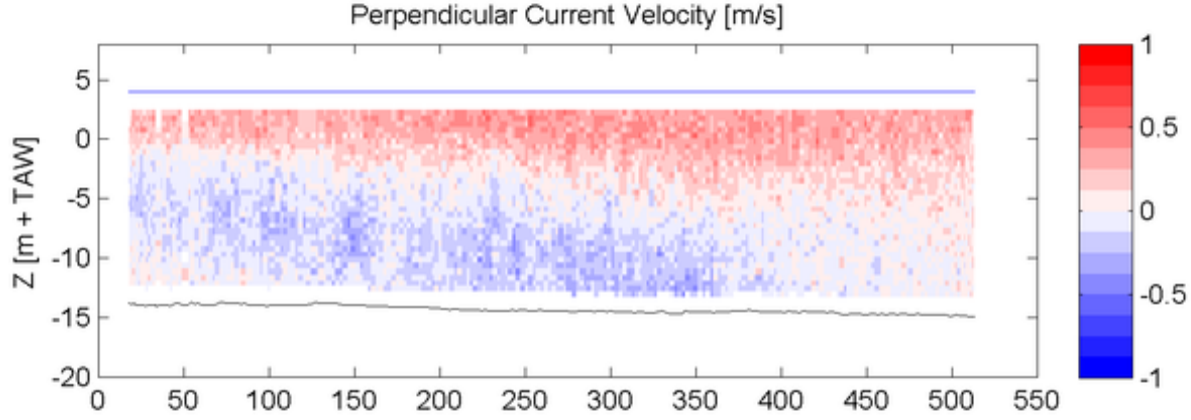
In association with :

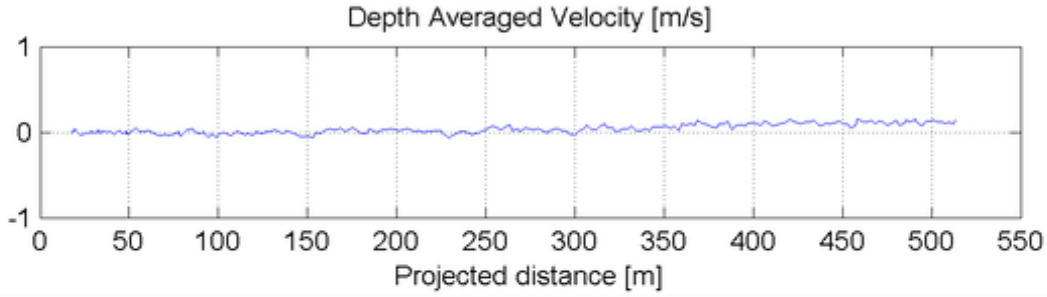
I/RA/11283/08.087/MSA

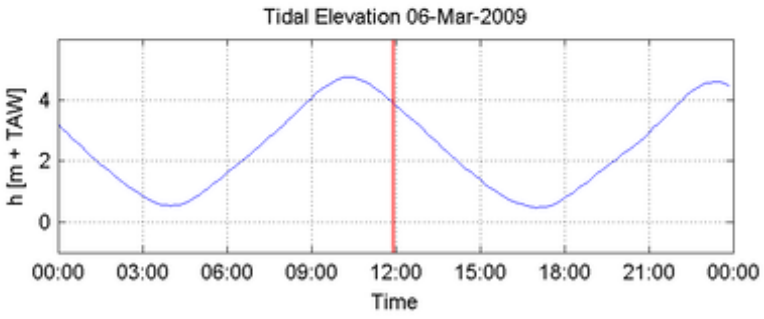
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3070DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:53 - 11:56

Time after HW [HH:MM]
1:35

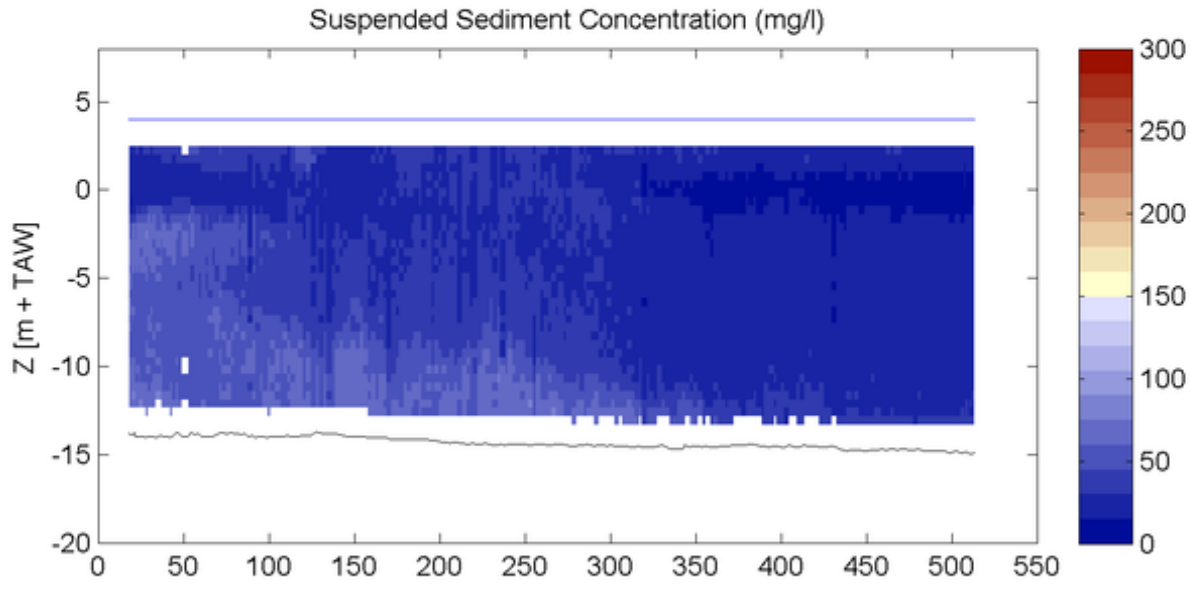
Data Processed by:

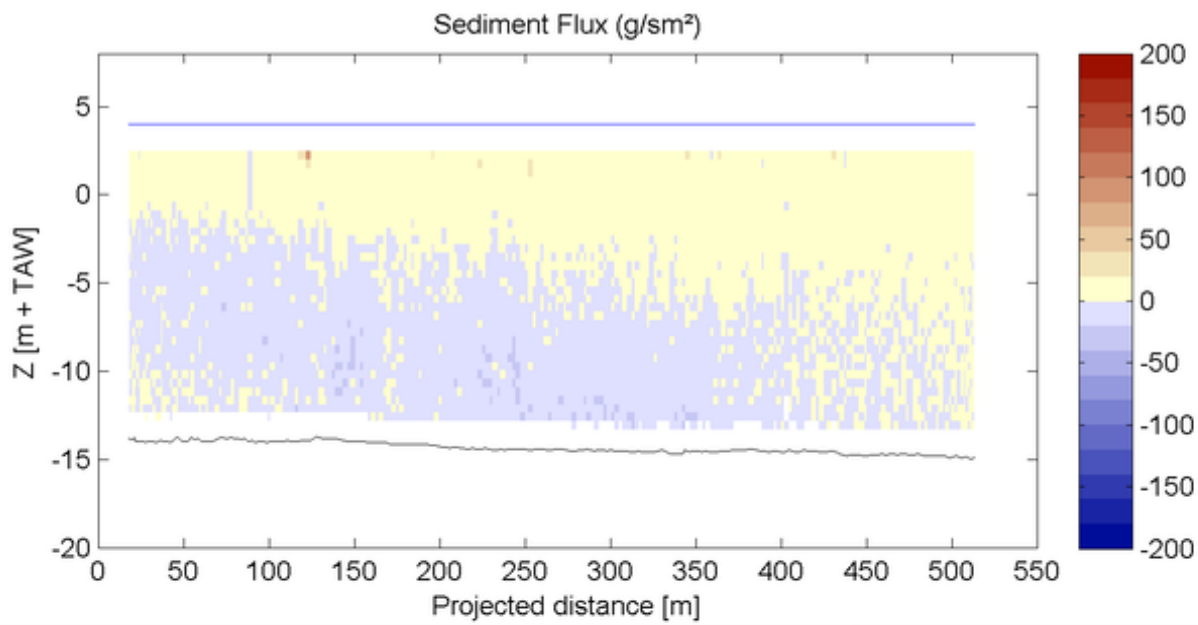
In association with :

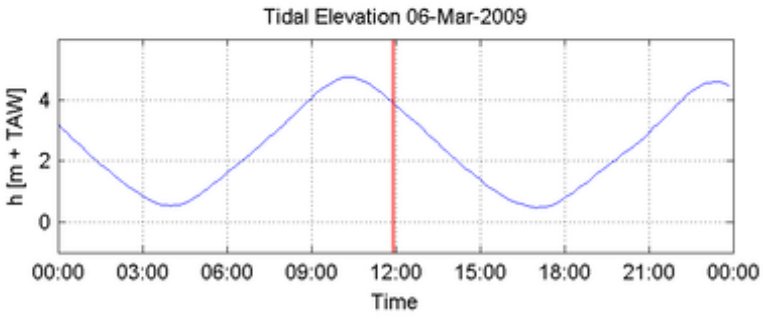
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3070DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
11:53 - 11:56

Time after HW [HH:MM]
1:35

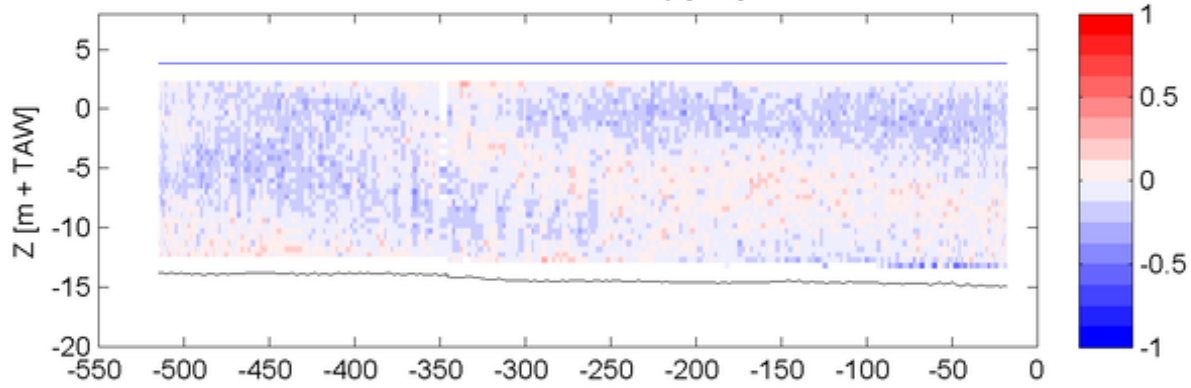
Data Processed by:

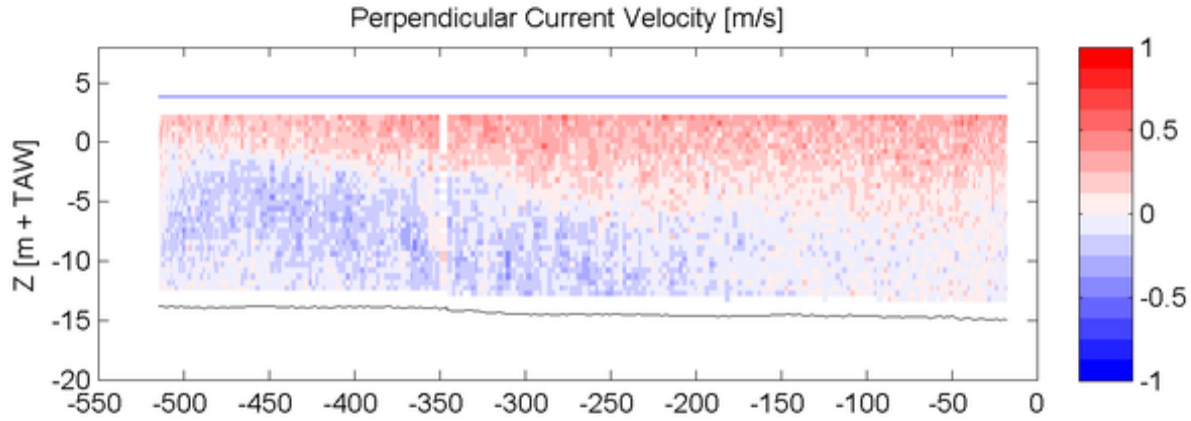
In association with :

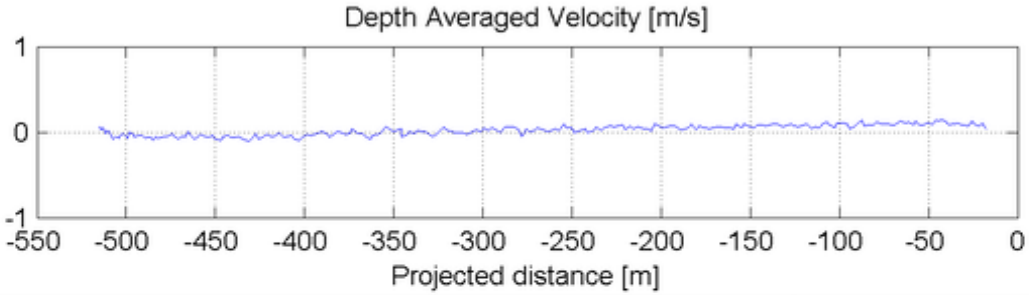
I/RA/11283/08.087/MSA

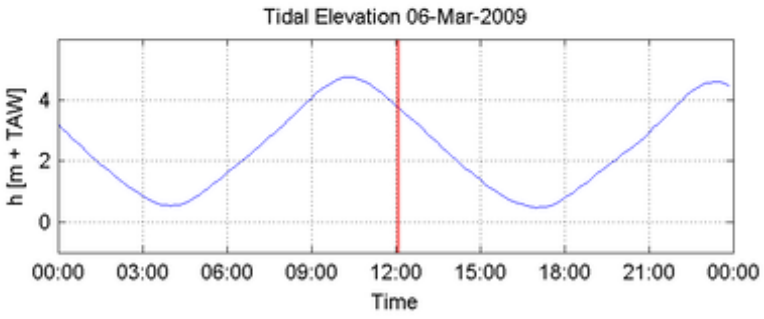
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3072DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
12:03 - 12:06

Time after HW [HH:MM]
1:45

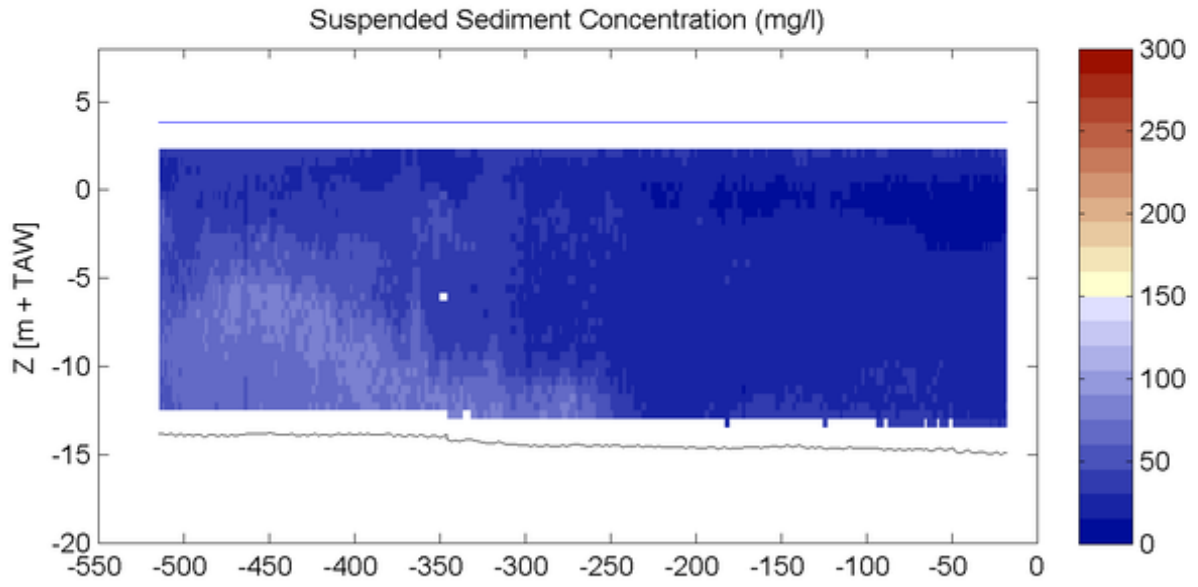
Data Processed by:

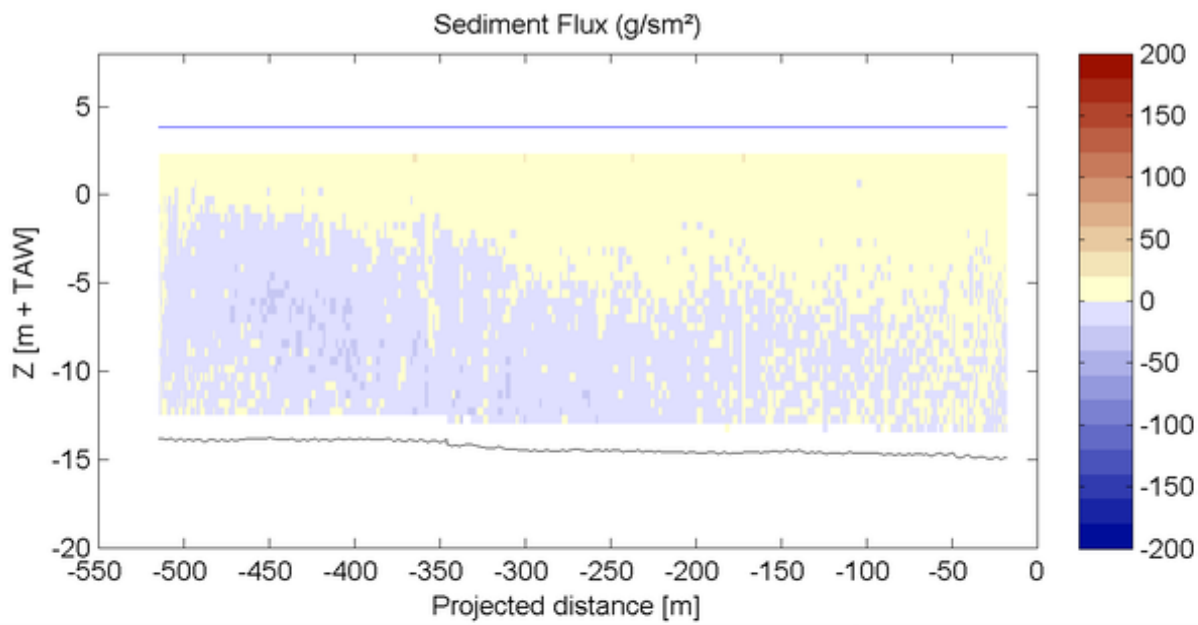
In association with :

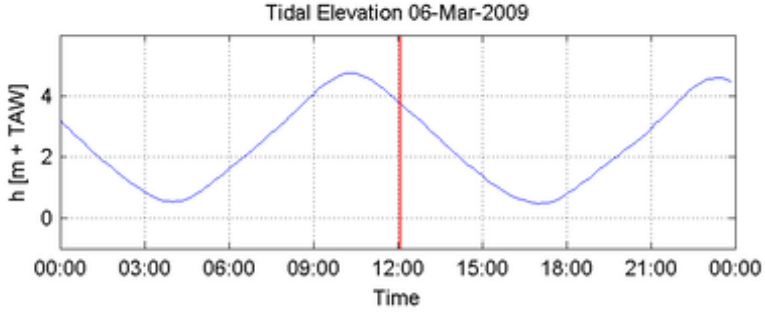
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3072DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

12:03 - 12:06

Time after HW [HH:MM]

1:45

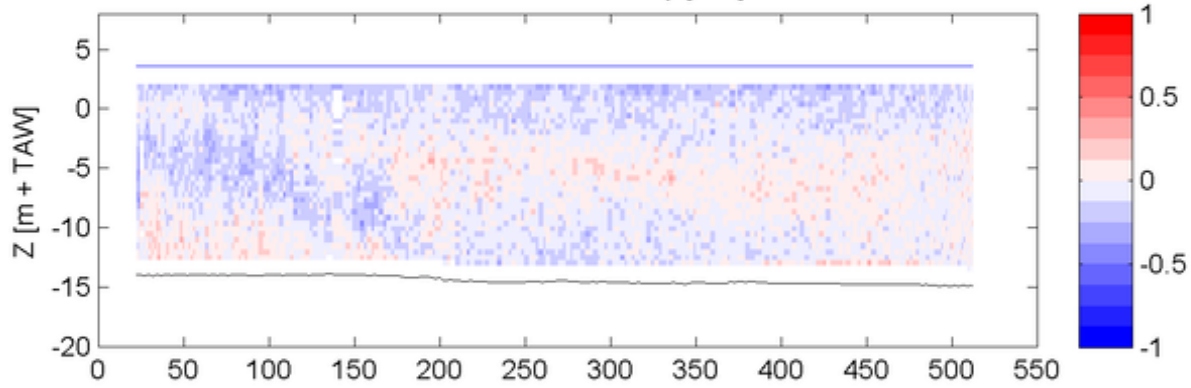
Data Processed by:

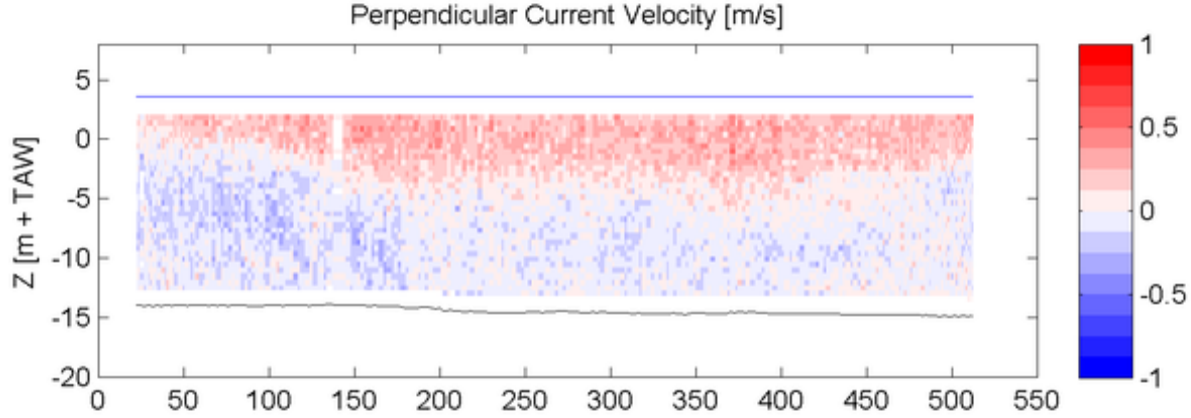
In association with :

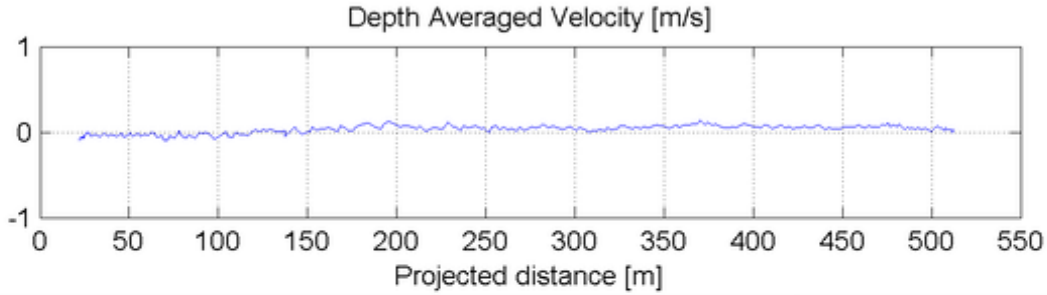
I/RA/11283/08.087/MSA

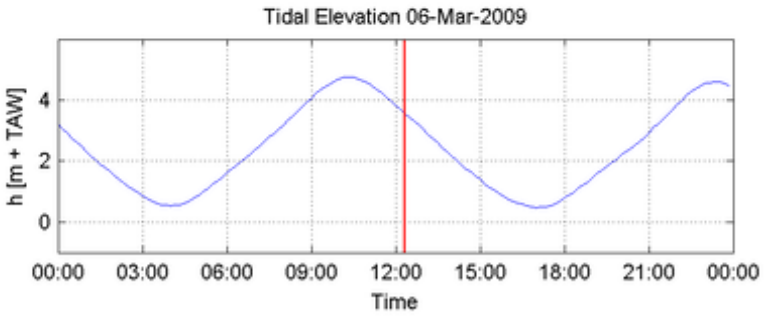
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3074DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
12:17 - 12:20

Time after HW [HH:MM]
1:58

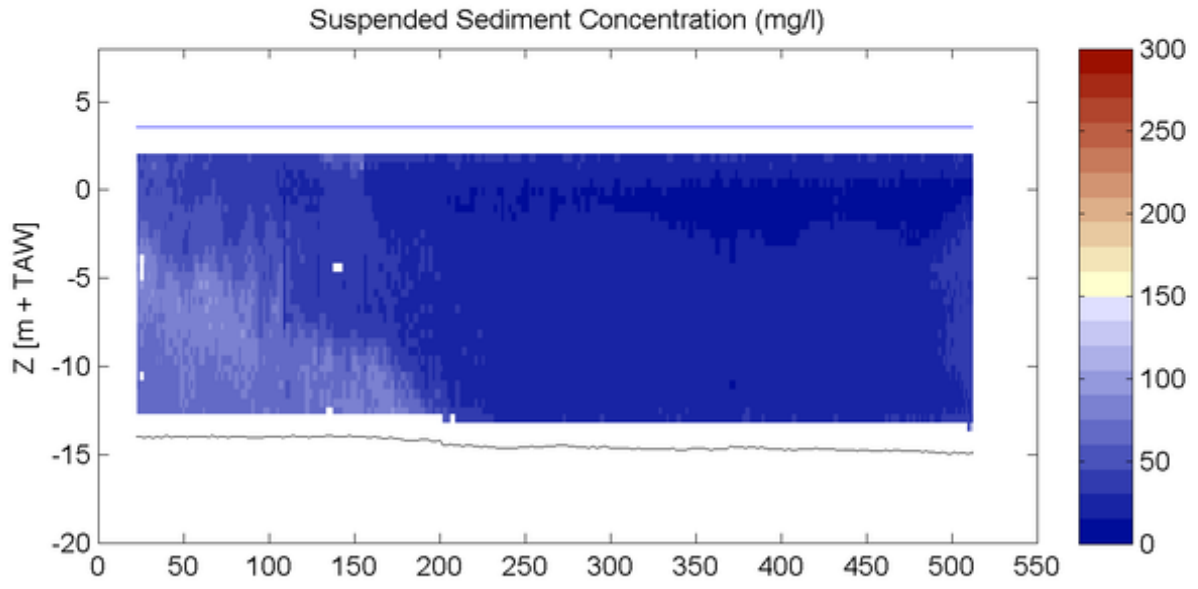
Data Processed by:

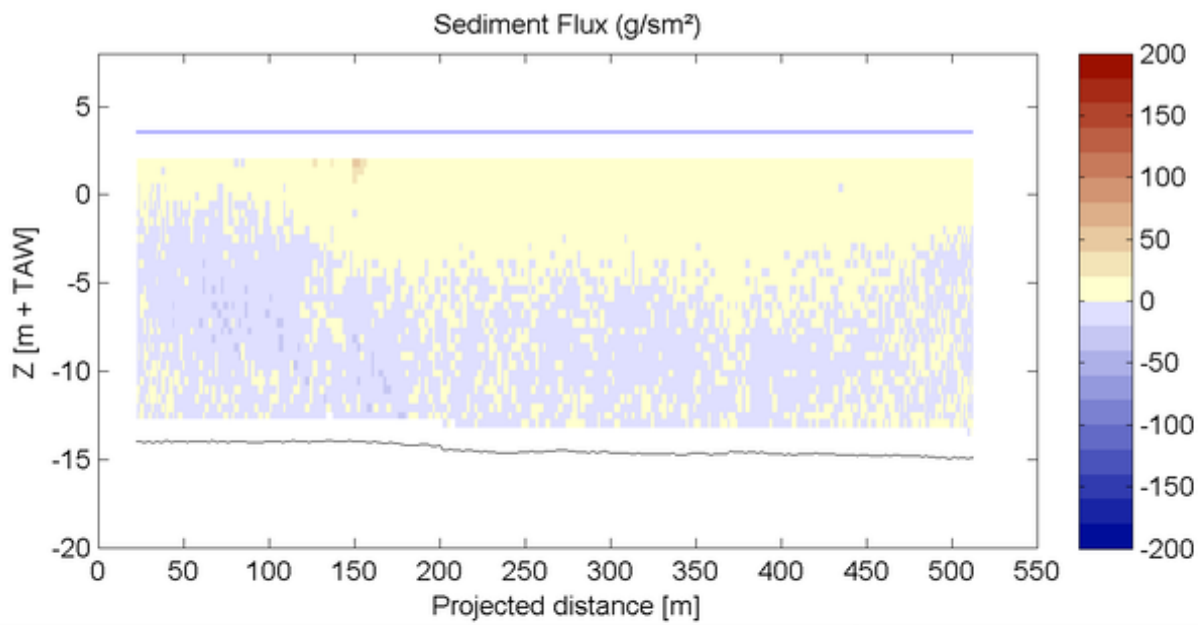
In association with :

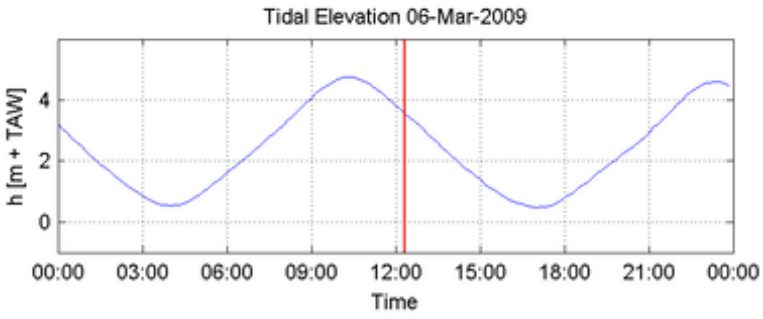
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3074DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
12:17 - 12:20

Time after HW [HH:MM]
1:58

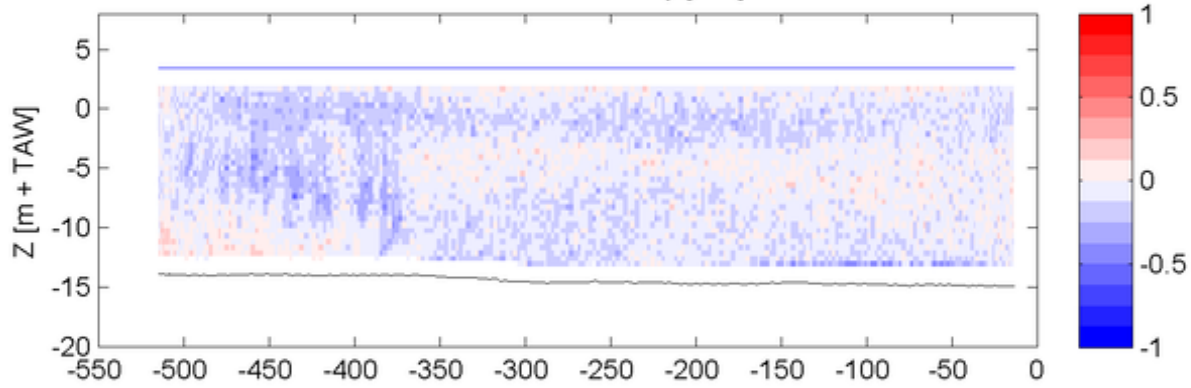
Data Processed by:

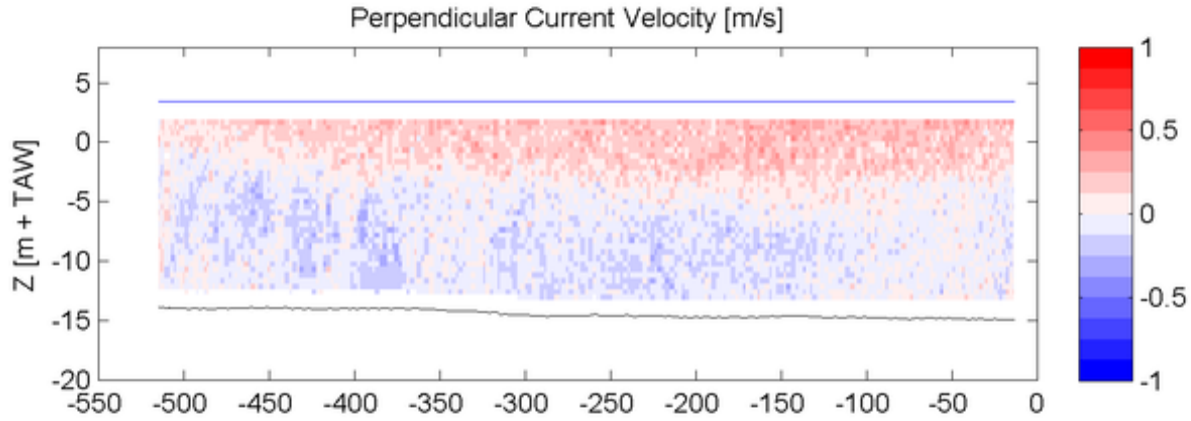
In association with :

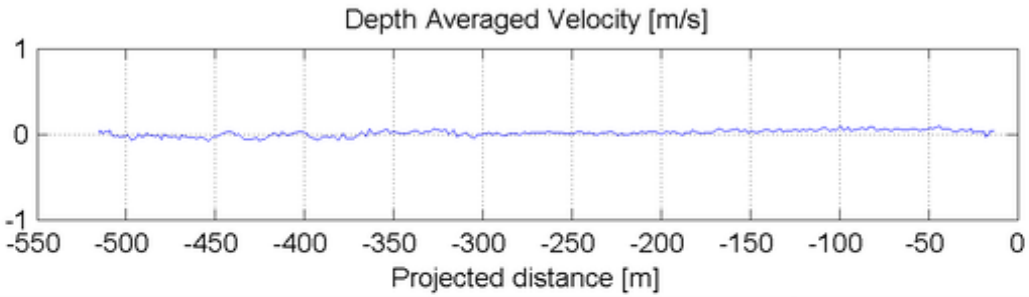
I/RA/11283/08.087/MSA

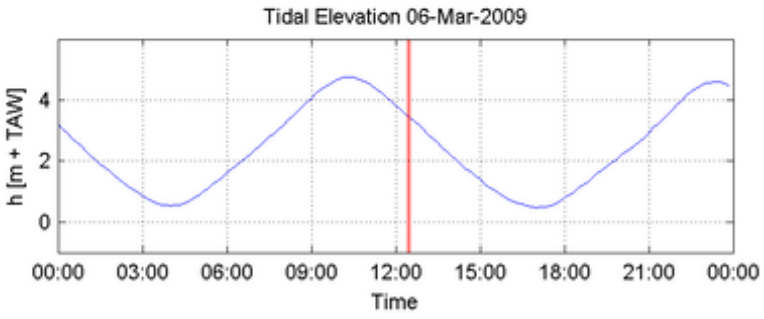
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3076DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
12:26 - 12:29

Time after HW [HH:MM]
2:07

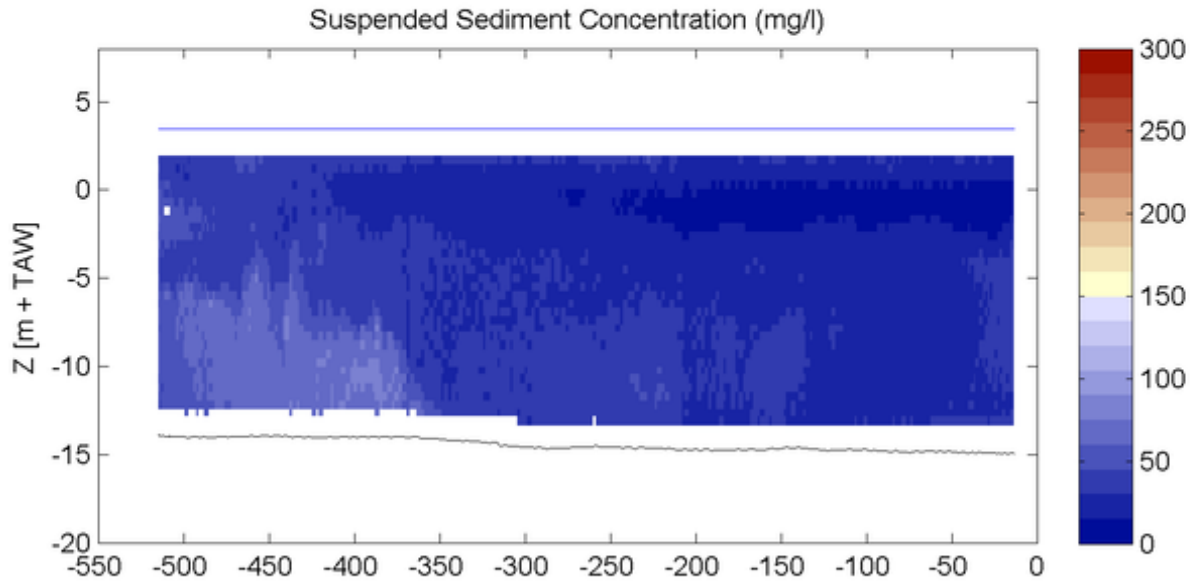
Data Processed by:

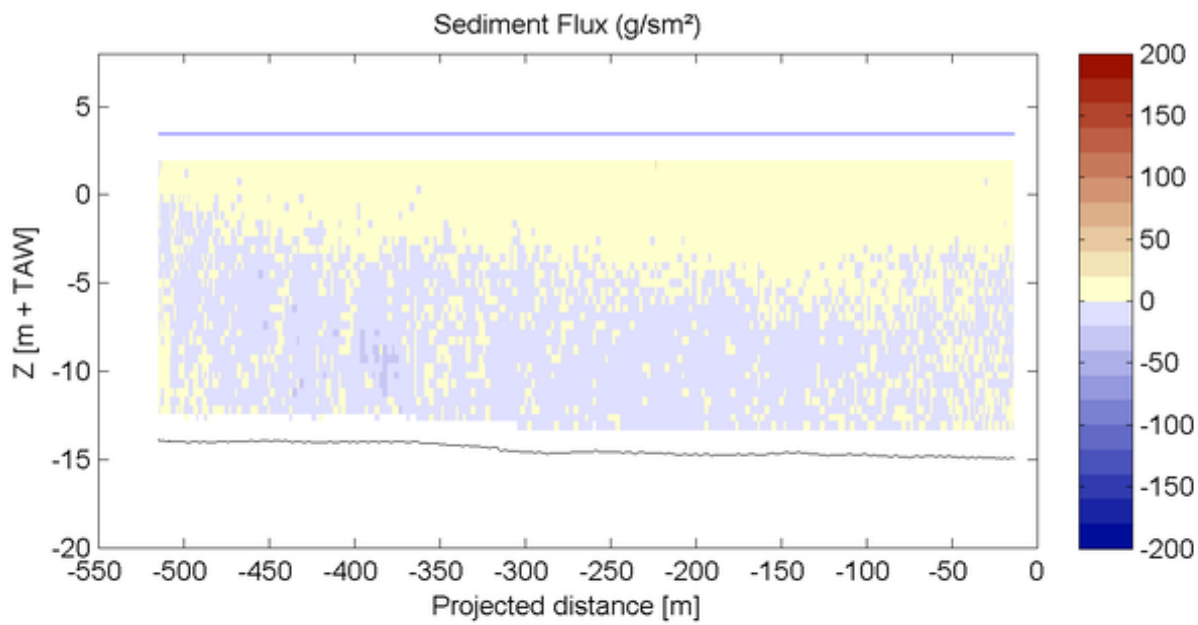
In association with :

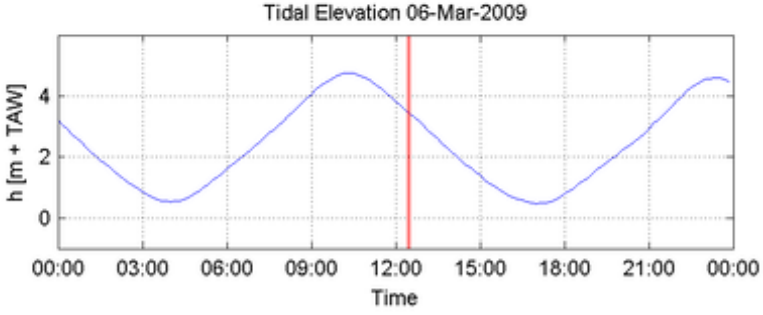
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3076DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
12:26 - 12:29

Time after HW [HH:MM]
2:07

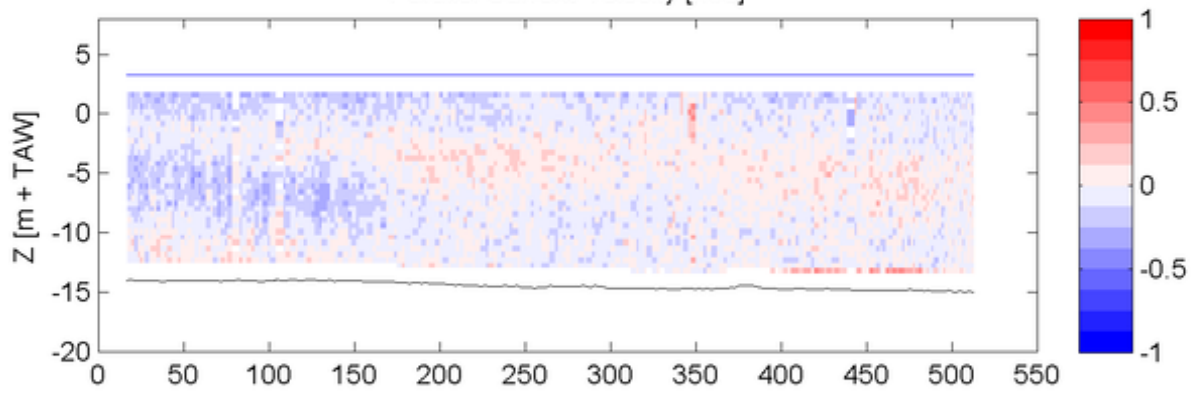
Data Processed by:

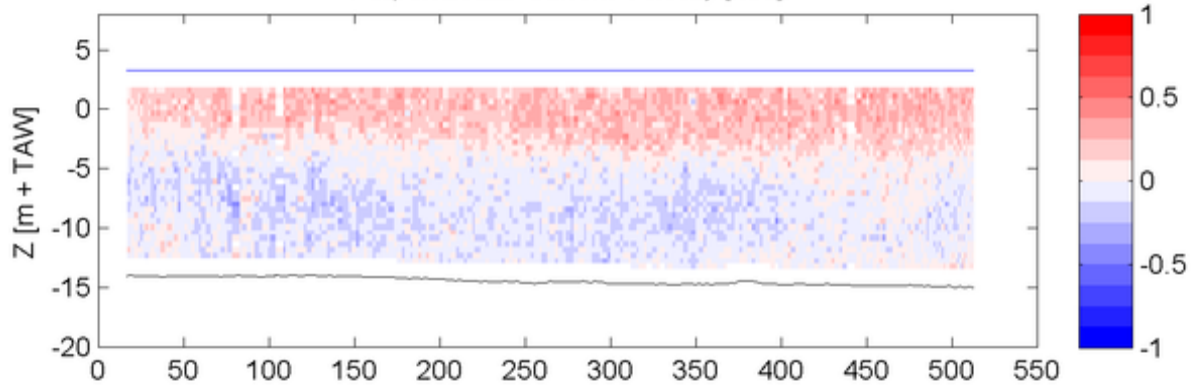
In association with :

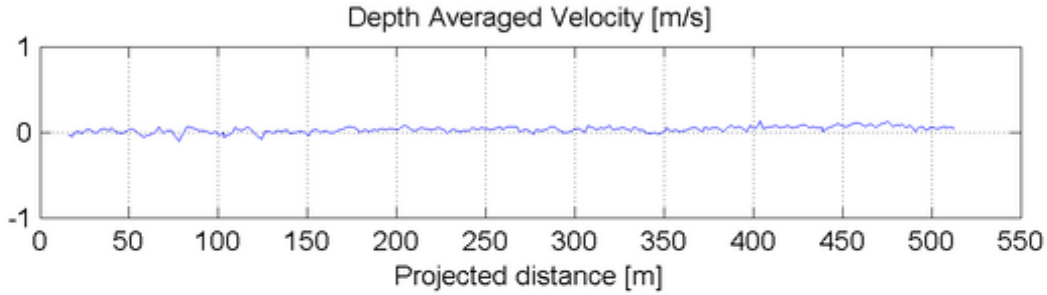
I/RA/11283/08.087/MSA

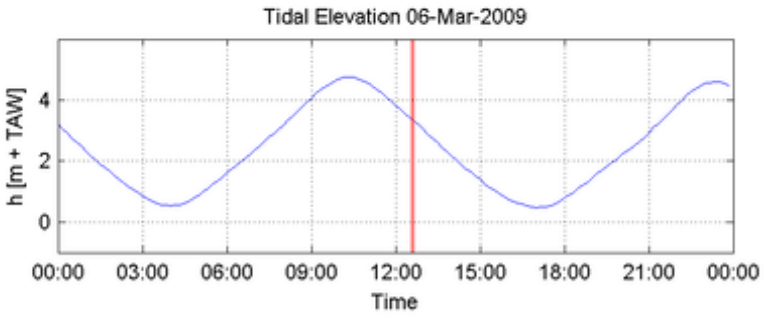
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3078DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
12:35 - 12:38

Time after HW [HH:MM]
2:16

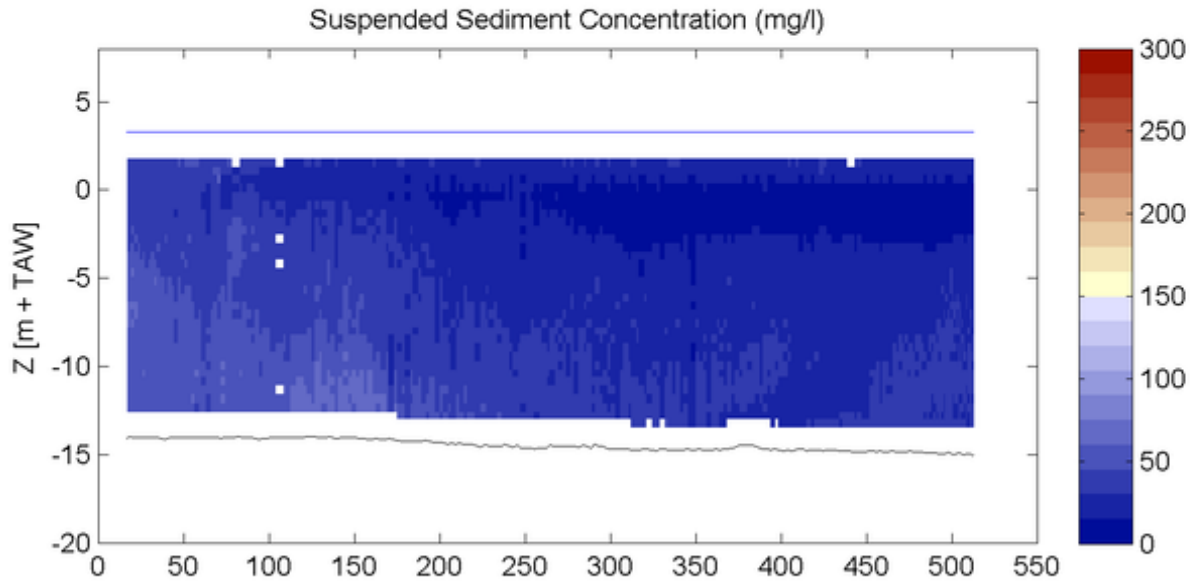
Data Processed by:

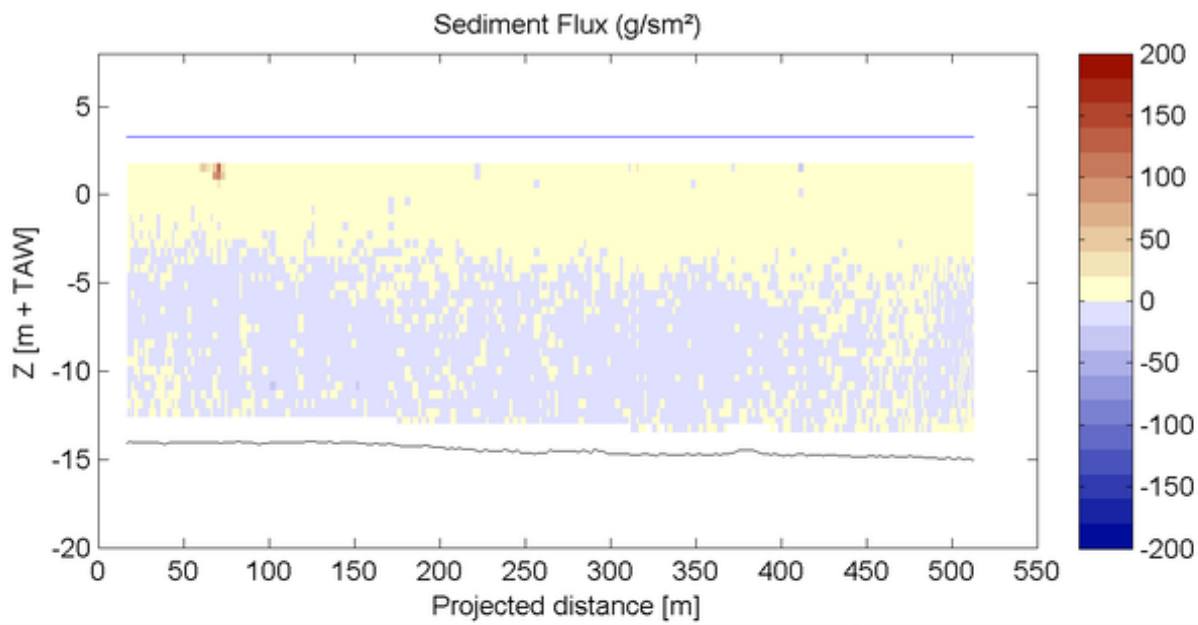
In association with :

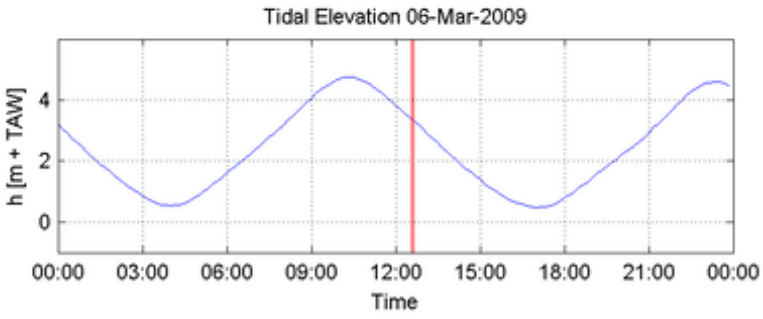
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3078DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
12:35 - 12:38

Time after HW [HH:MM]
2:16

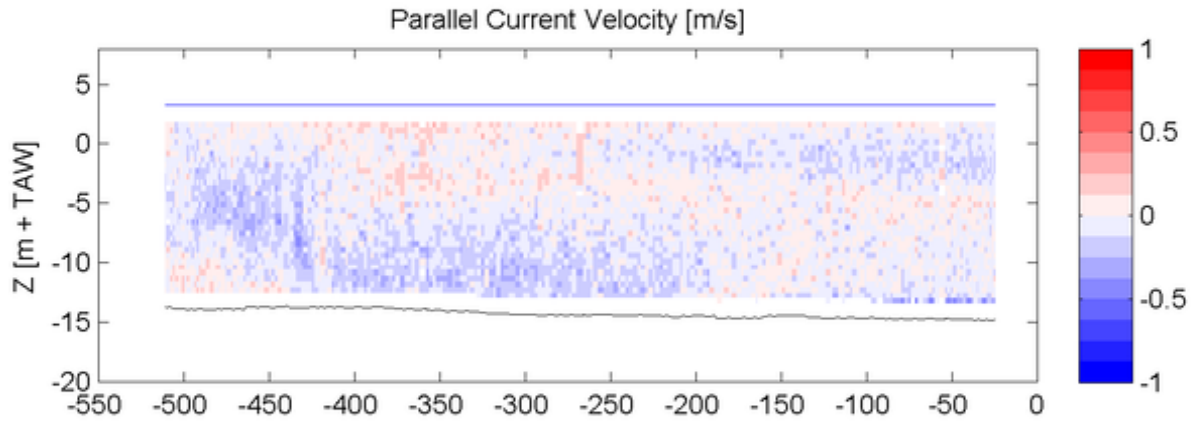
Data Processed by:

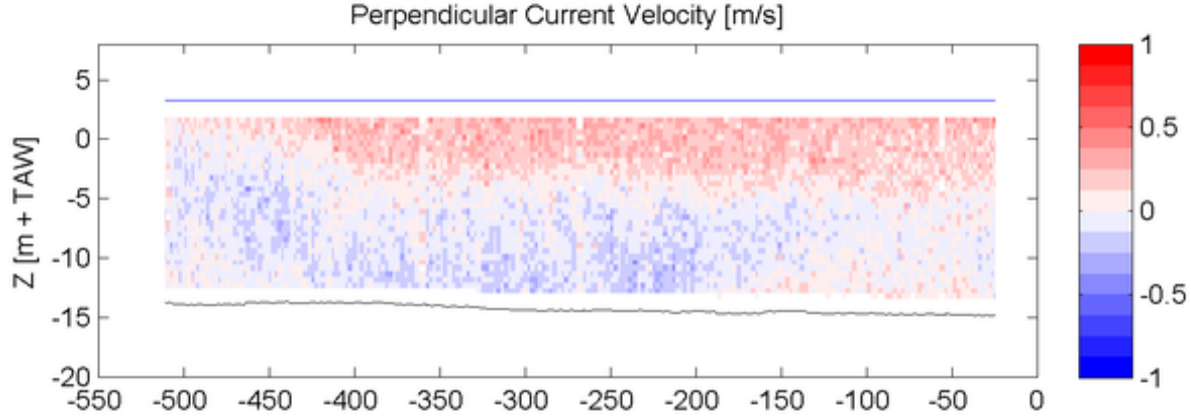
In association with :

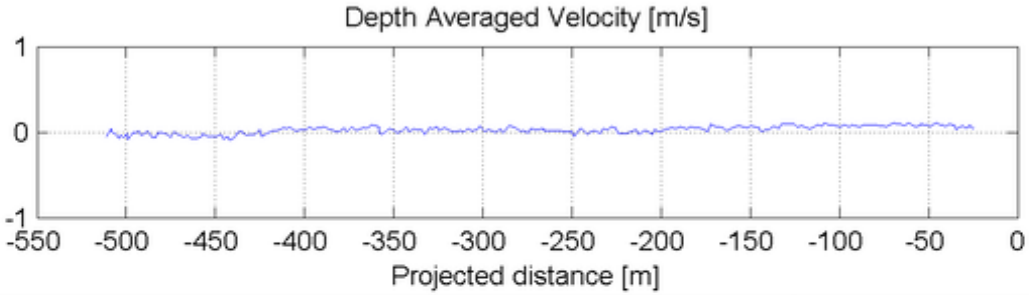
I/RA/11283/08.087/MSA

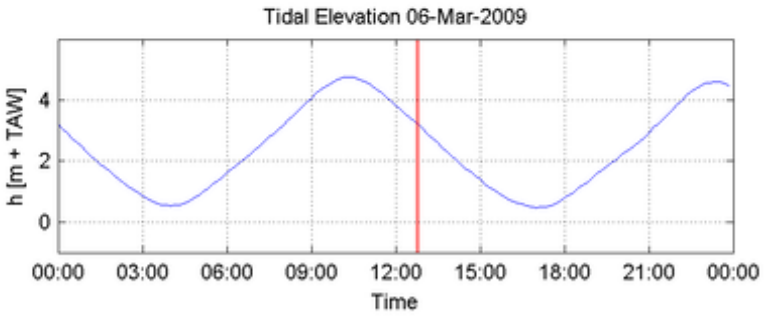
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3080DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
12:44 - 12:47

Time after HW [HH:MM]
2:26

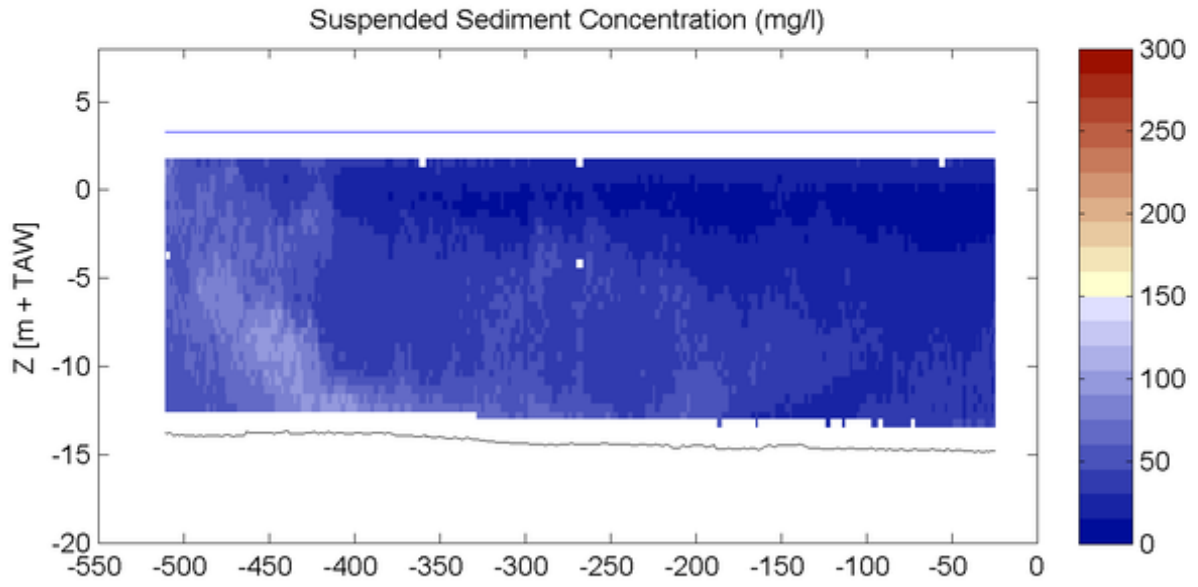
Data Processed by:

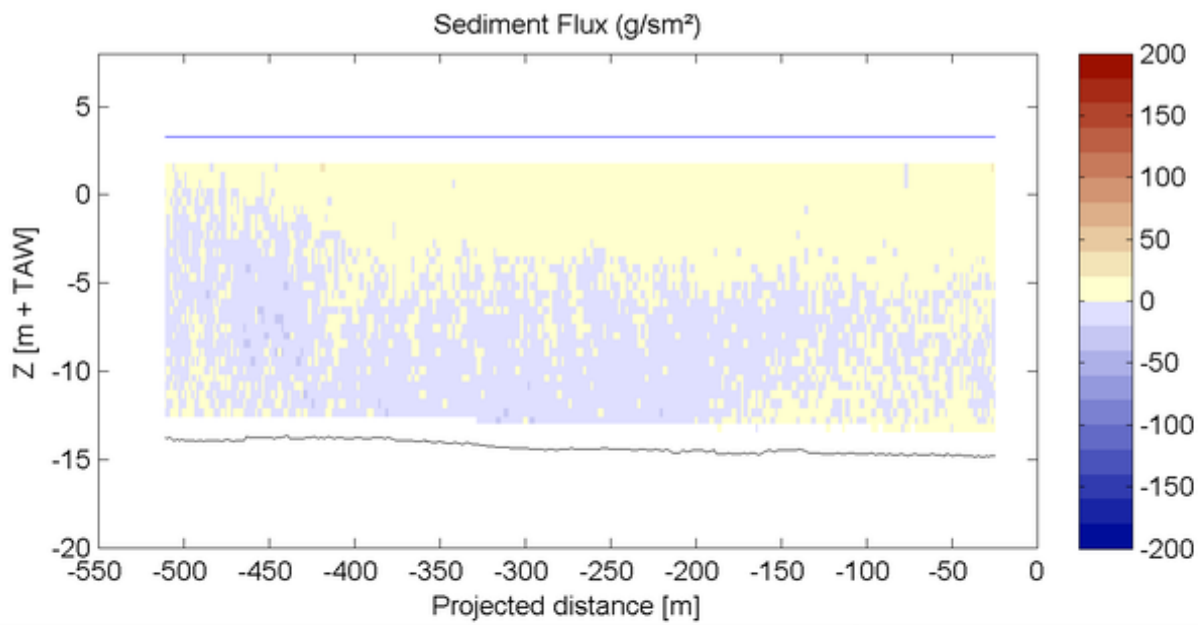
In association with :

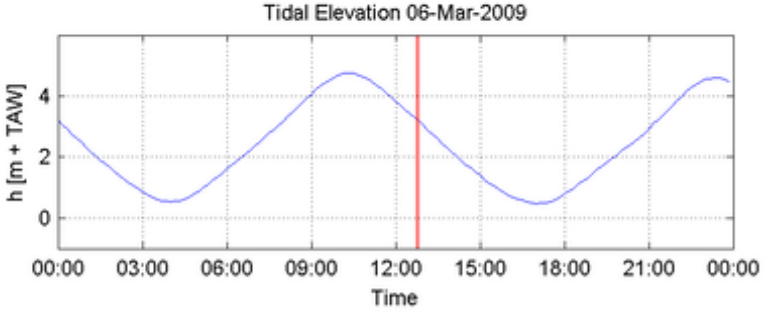
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3080DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
12:44 - 12:47

Time after HW [HH:MM]
2:26

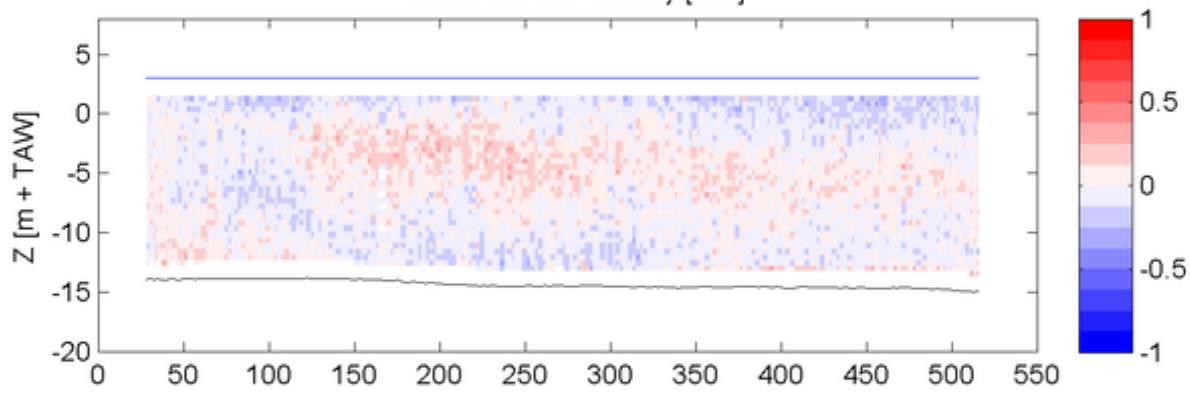
Data Processed by:

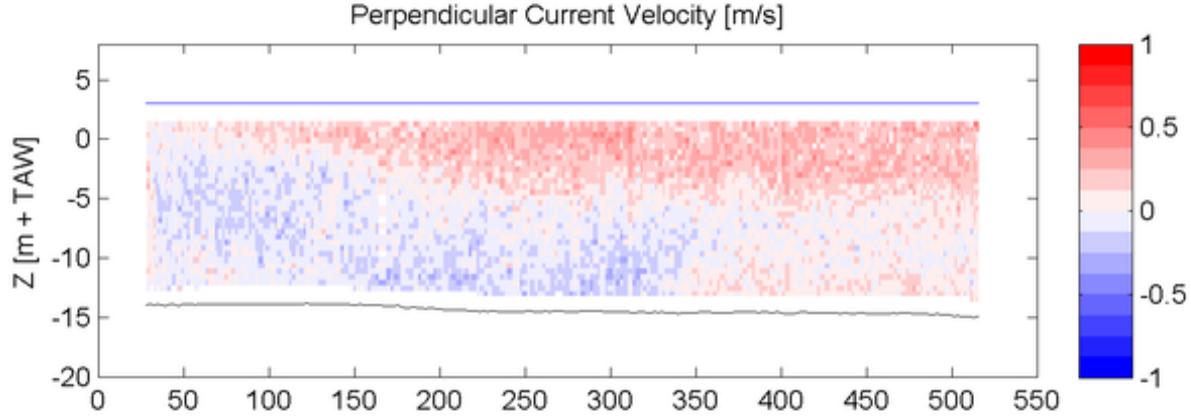
In association with :

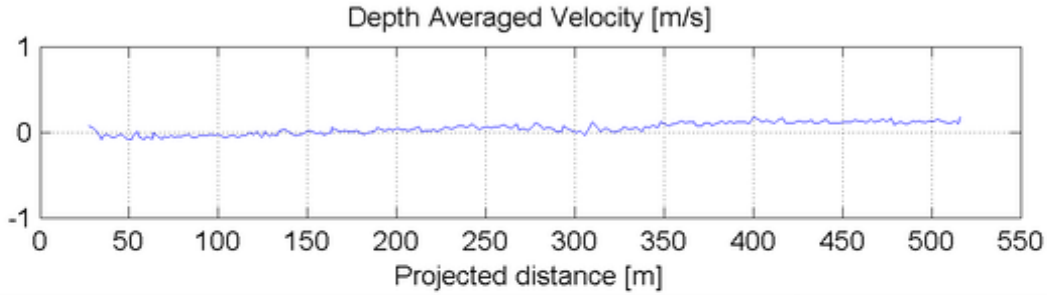
I/RA/11283/08.087/MSA

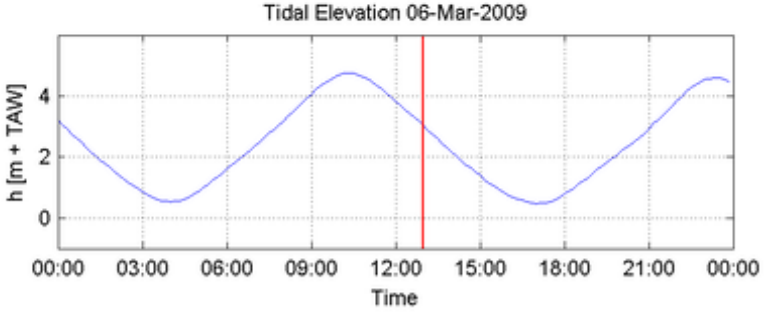
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3082DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
12:56 - 12:59

Time after HW [HH:MM]
2:38

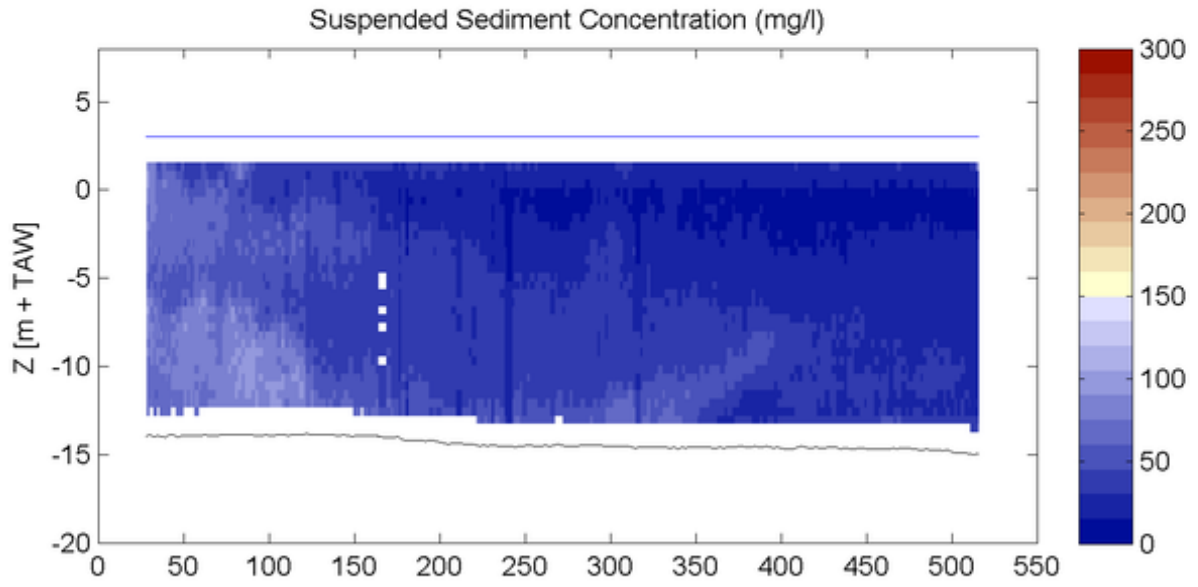
Data Processed by:

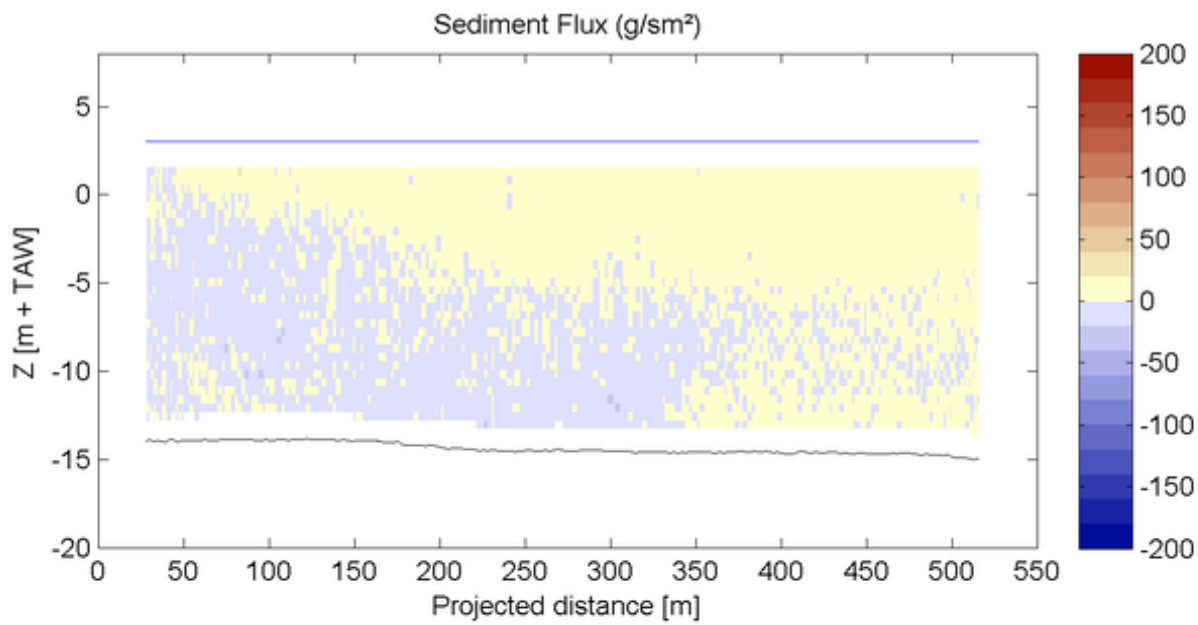
In association with :

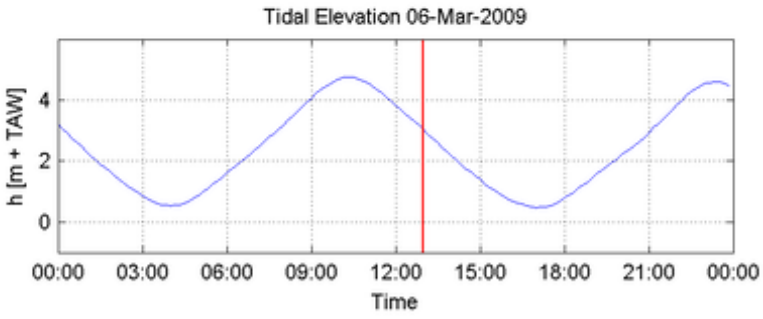
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3082DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
12:56 - 12:59

Time after HW [HH:MM]
2:38

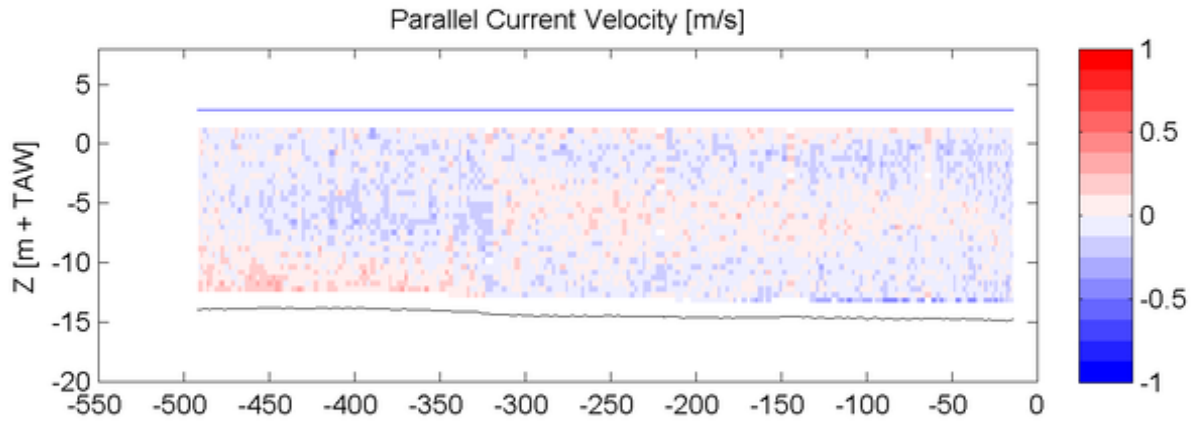
Data Processed by:

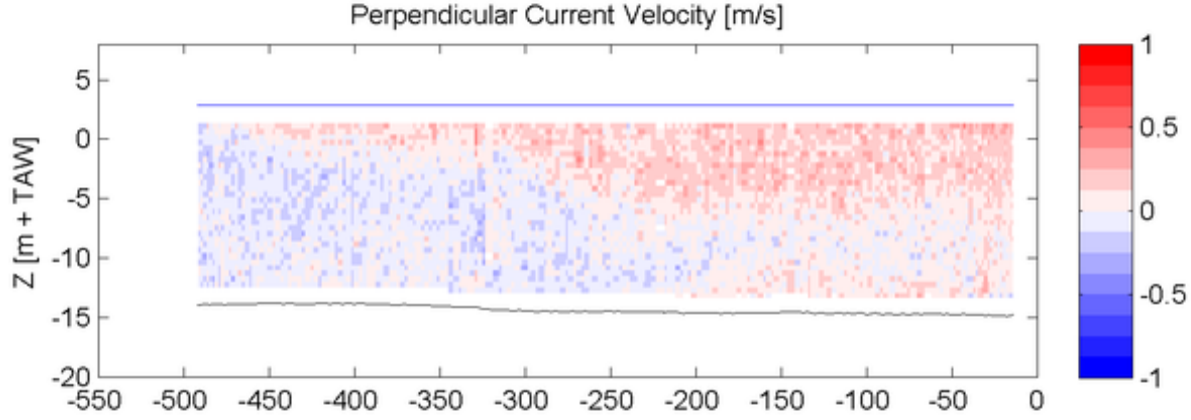
In association with :

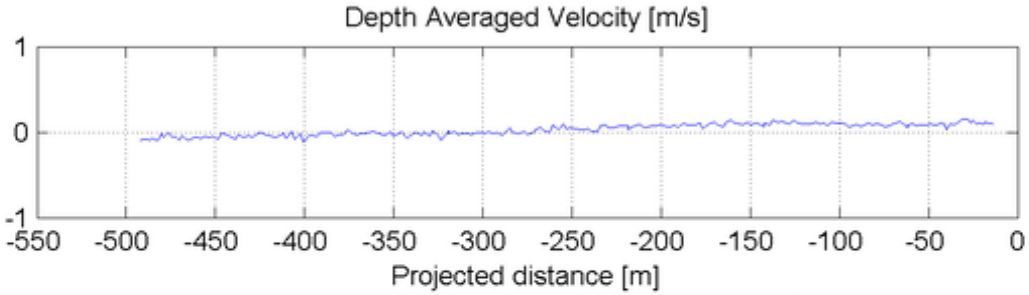
I/RA/11283/08.087/MSA

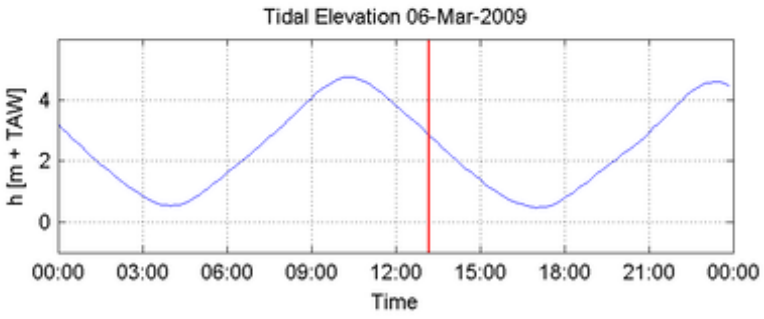
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3084DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:09 - 13:11

Time after HW [HH:MM]
2:50

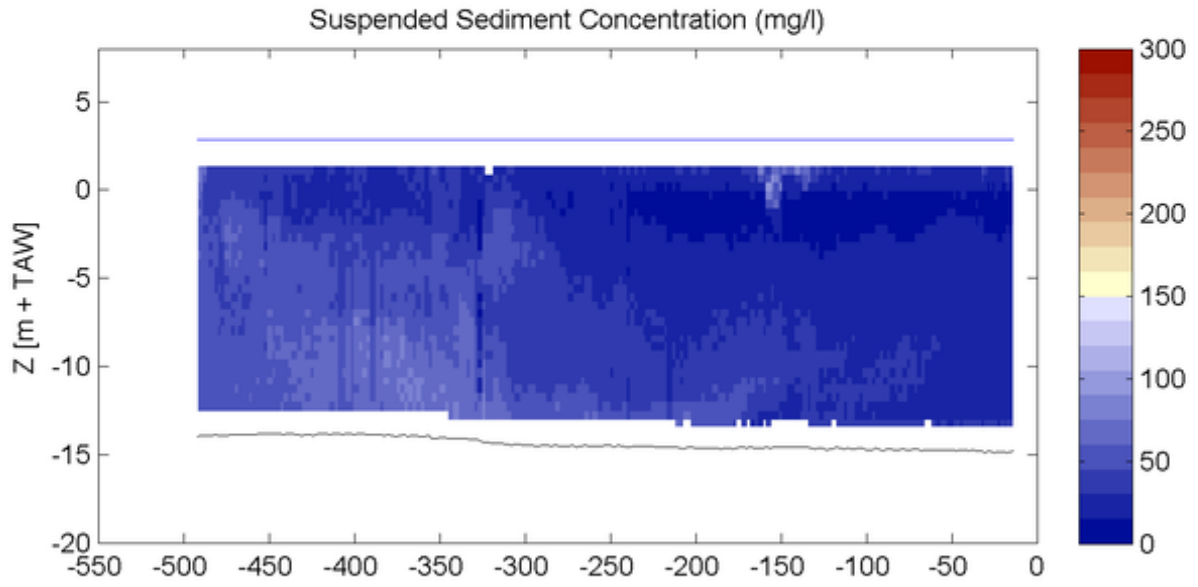
Data Processed by:

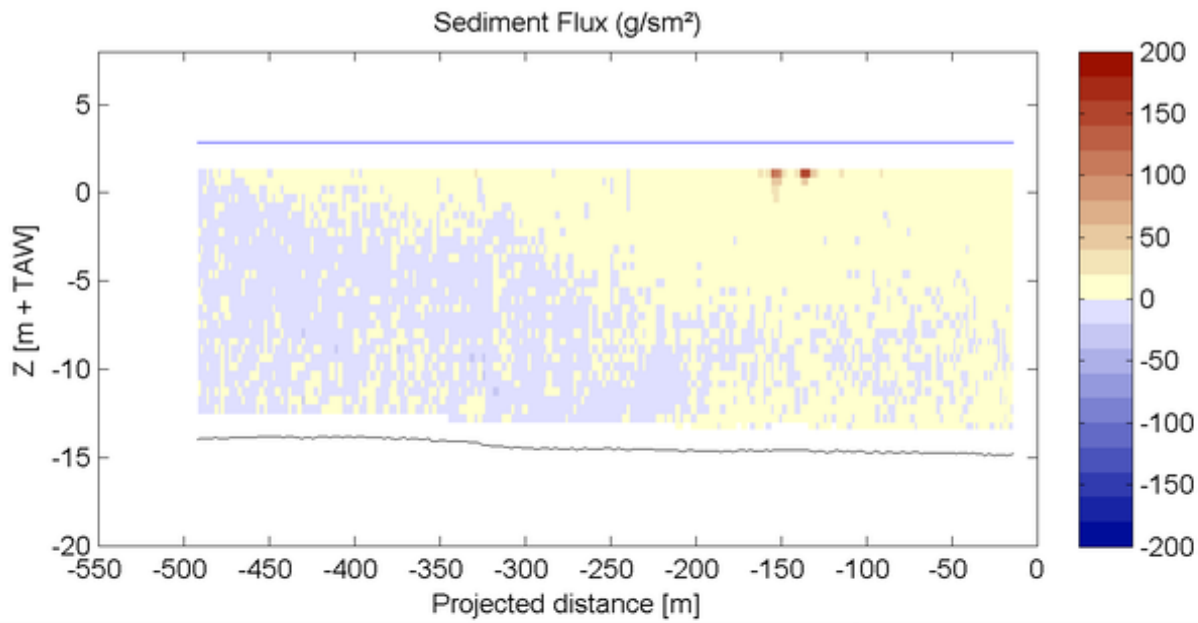
In association with :

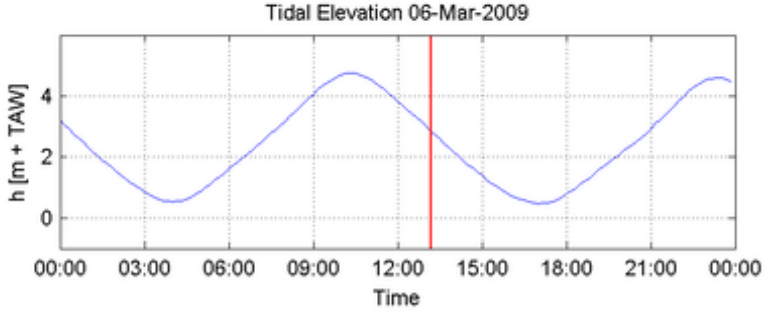
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3084DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:09 - 13:11

Time after HW [HH:MM]
2:50

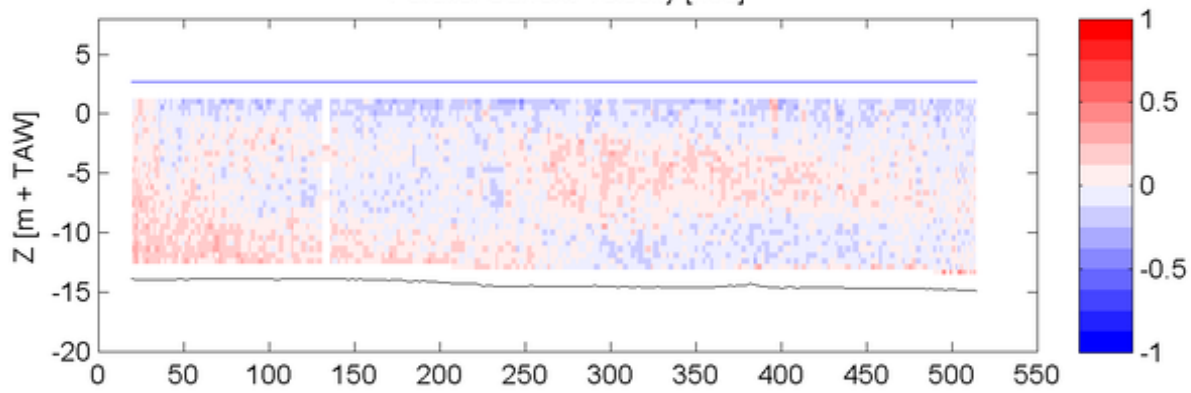
Data Processed by:

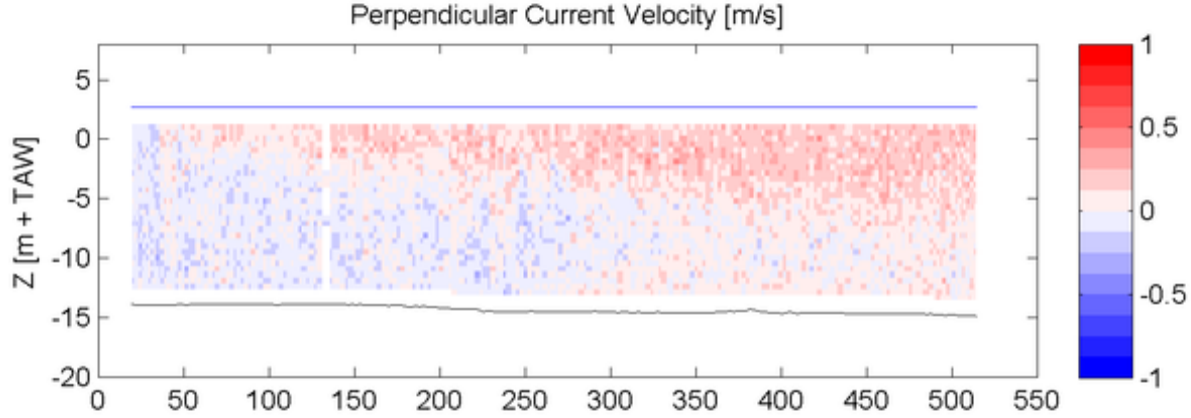
In association with :

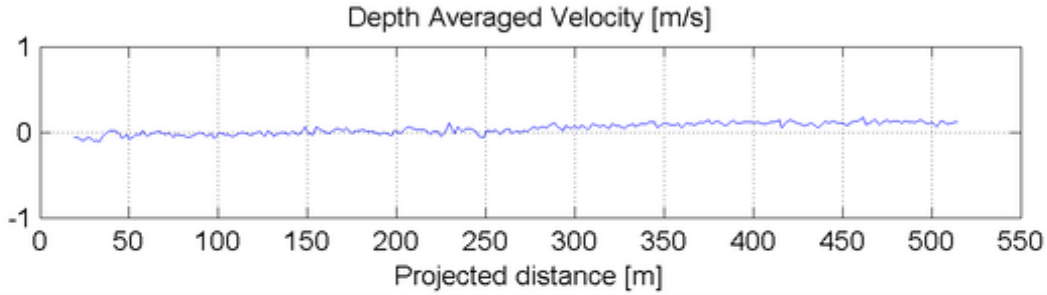
I/RA/11283/08.087/MSA

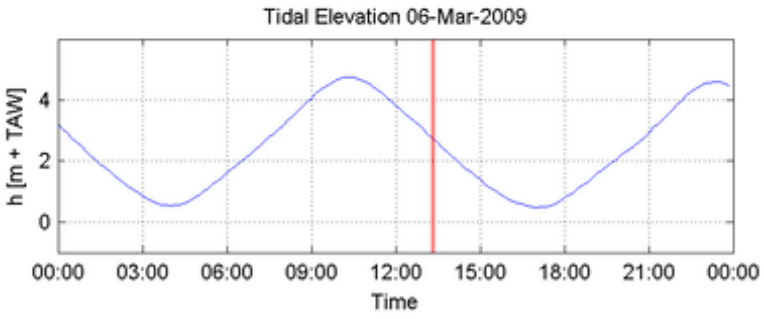
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3086DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:18 - 13:21

Time after HW [HH:MM]
2:59

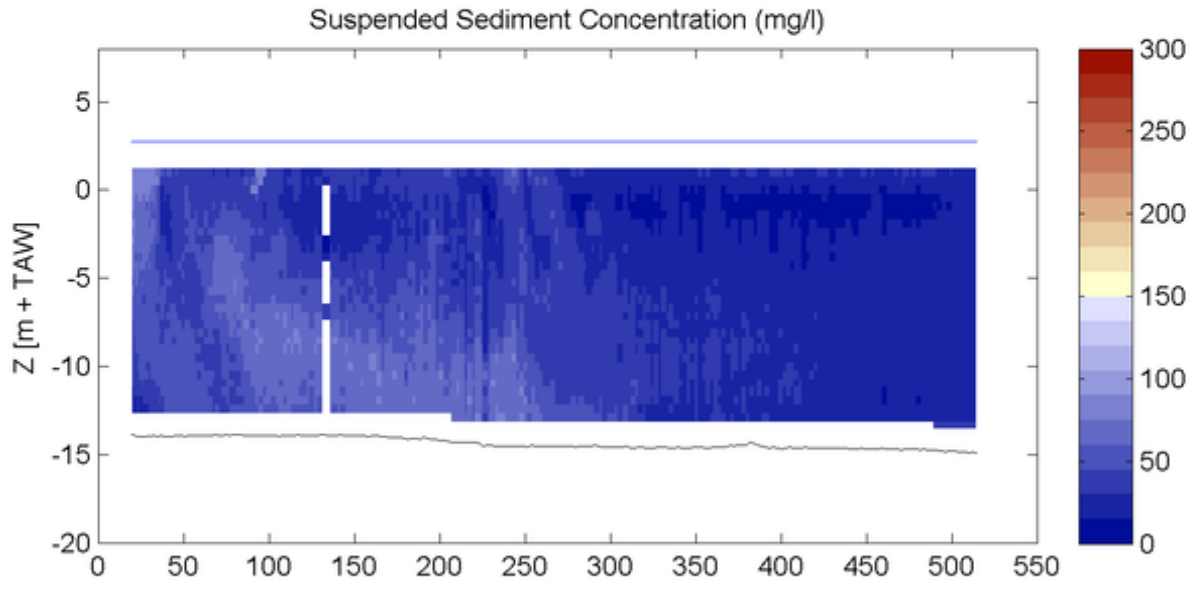
Data Processed by:

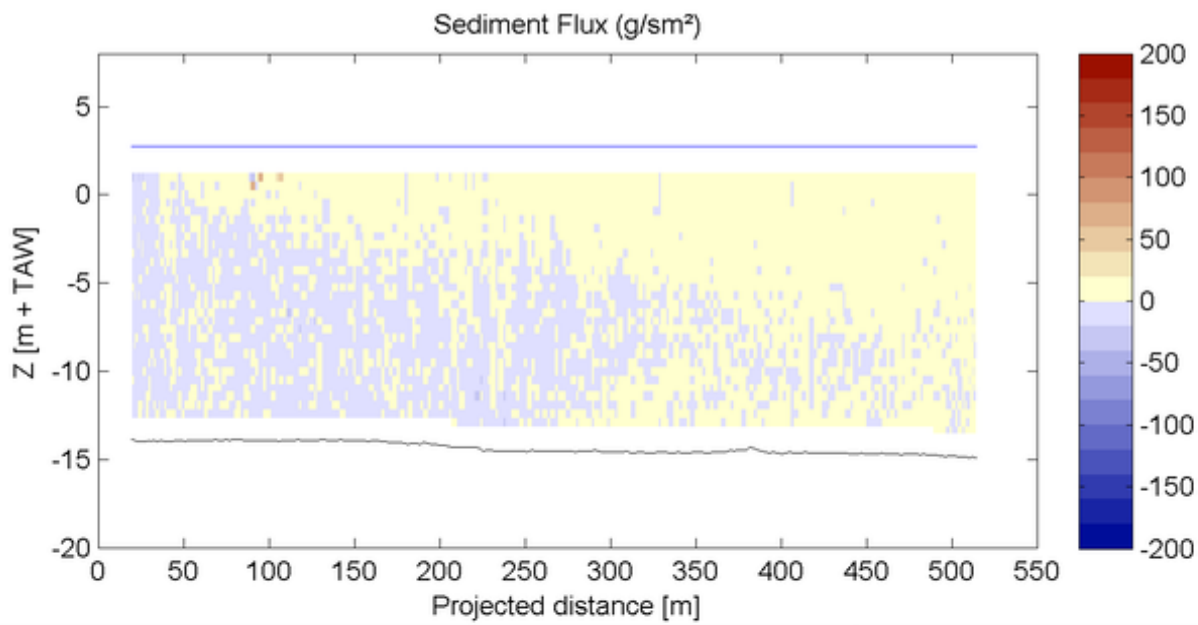
In association with :

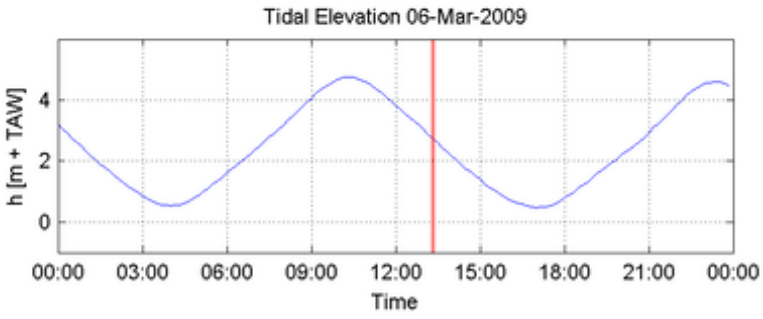
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3086DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:18 - 13:21

Time after HW [HH:MM]
2:59

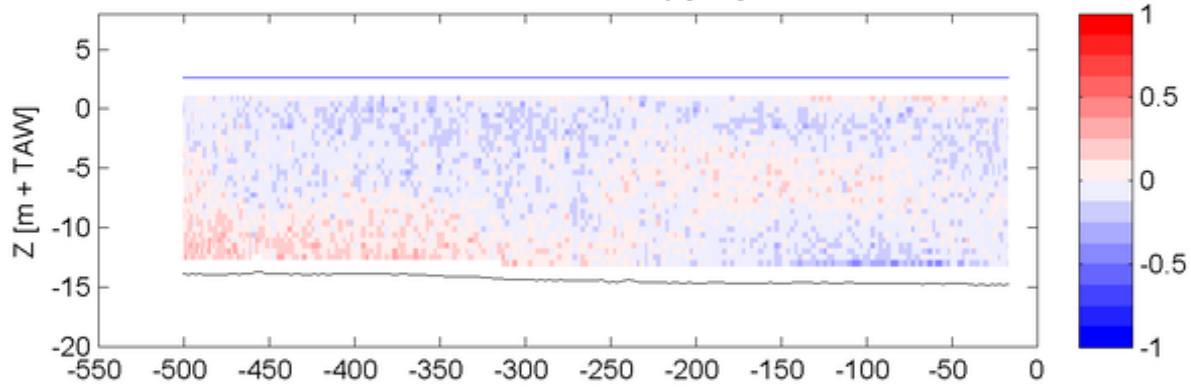
Data Processed by:

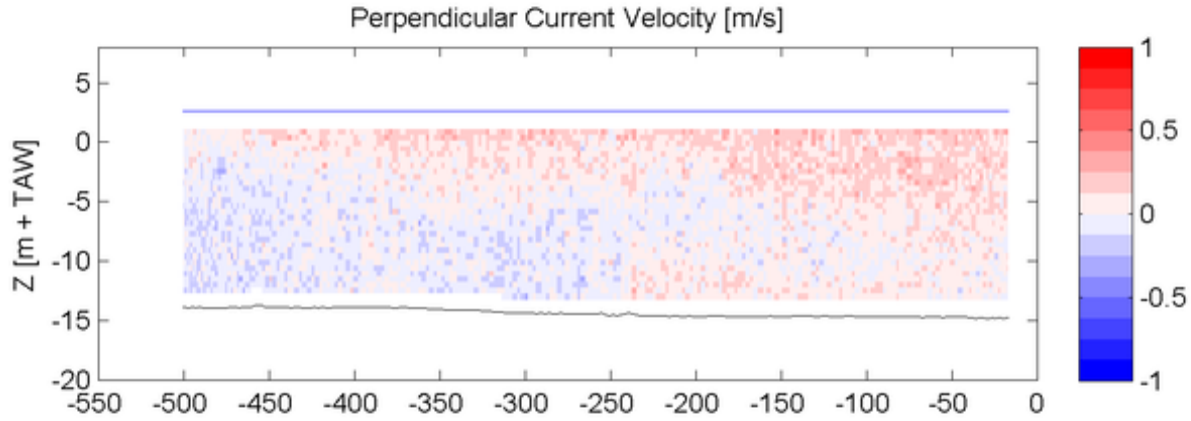
In association with :

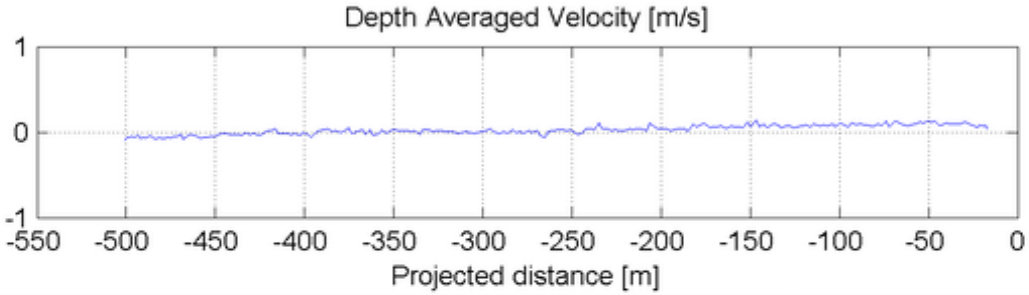
I/RA/11283/08.087/MSA

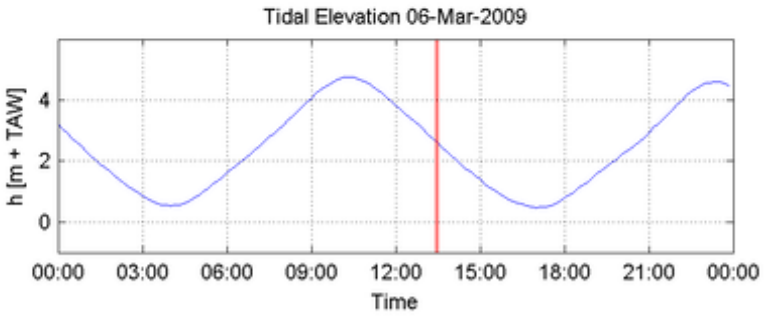
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3088DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:26 - 13:29

Time after HW [HH:MM]
3:08

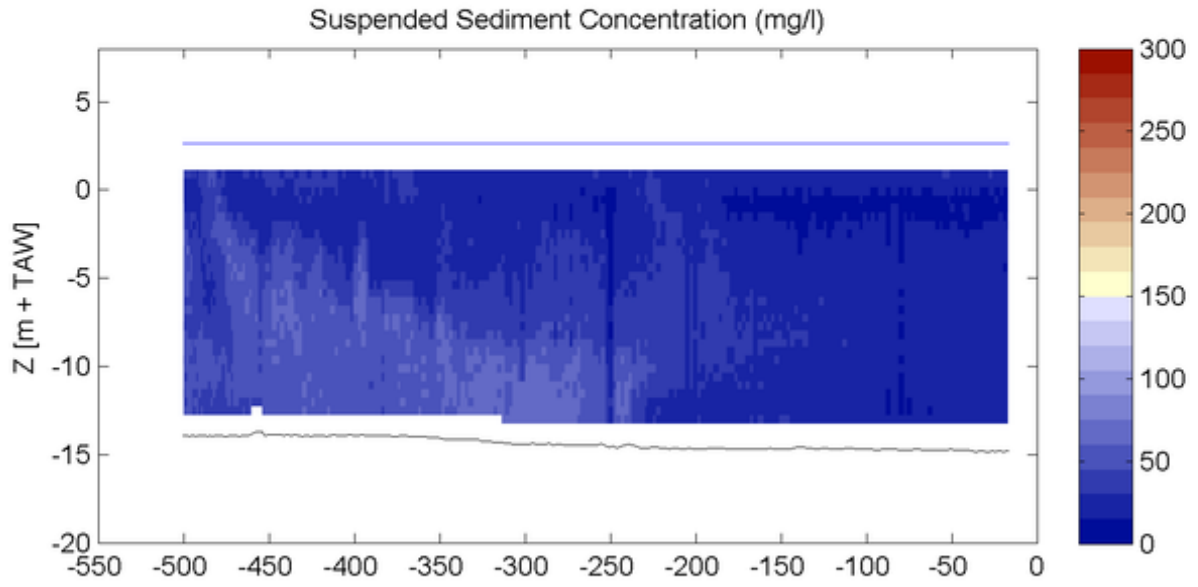
Data Processed by:

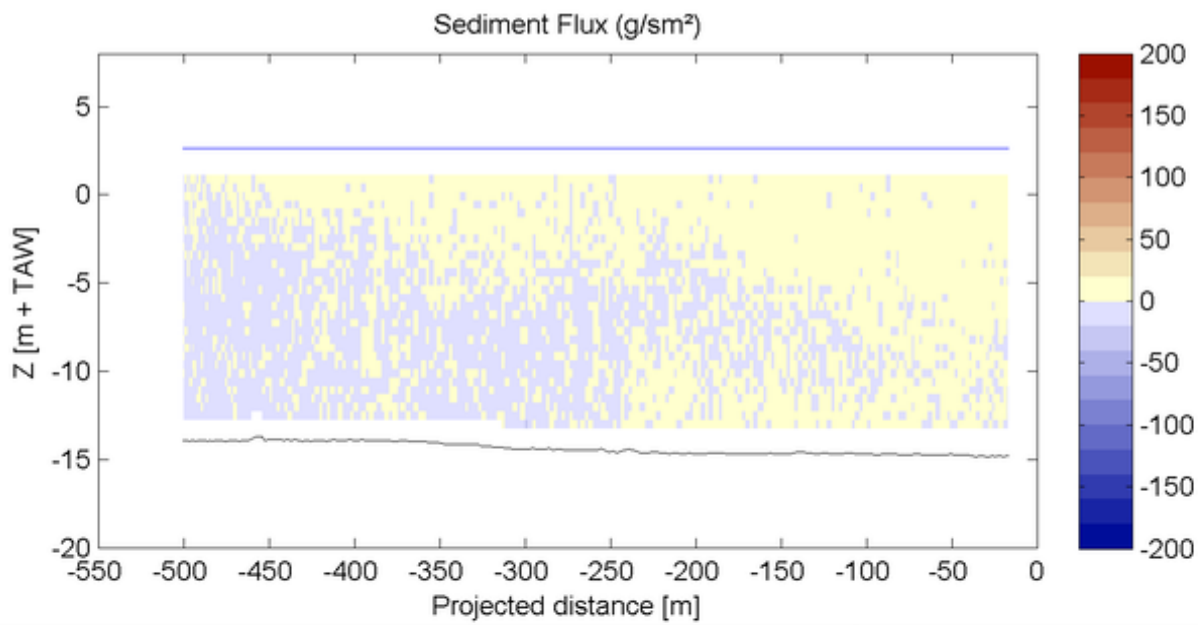
In association with :

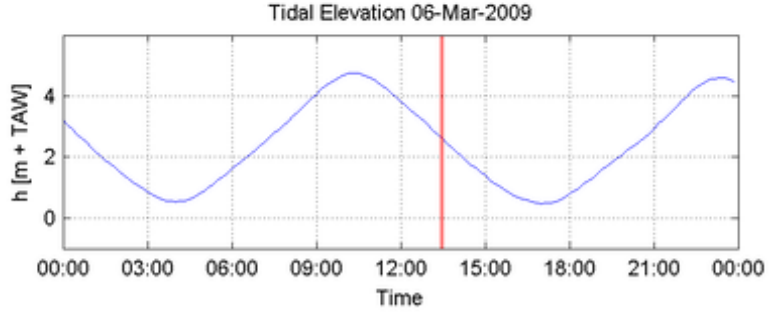
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3088DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:26 - 13:29

Time after HW [HH:MM]
3:08

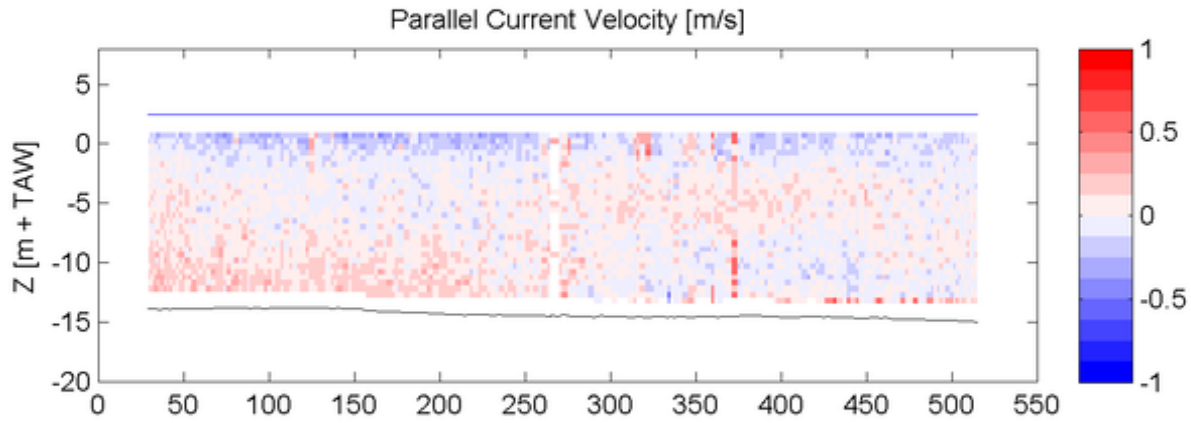
Data Processed by:

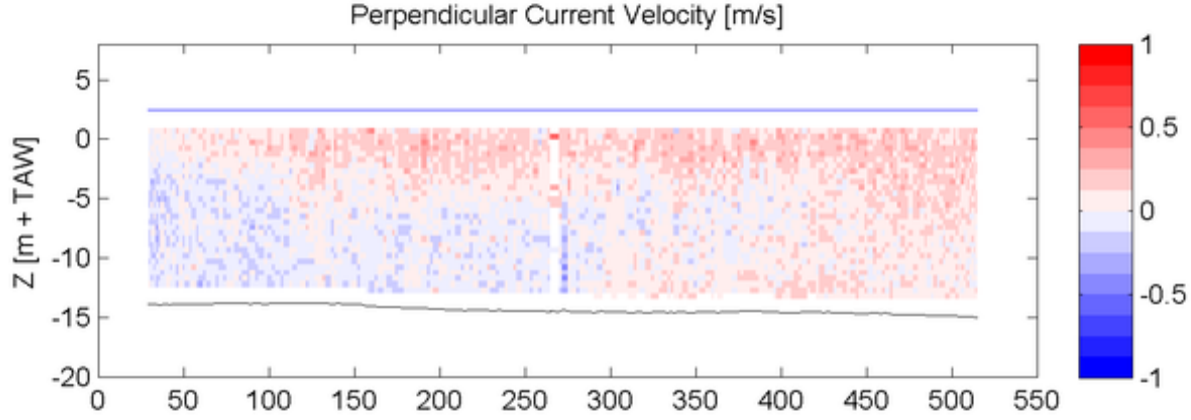
In association with :

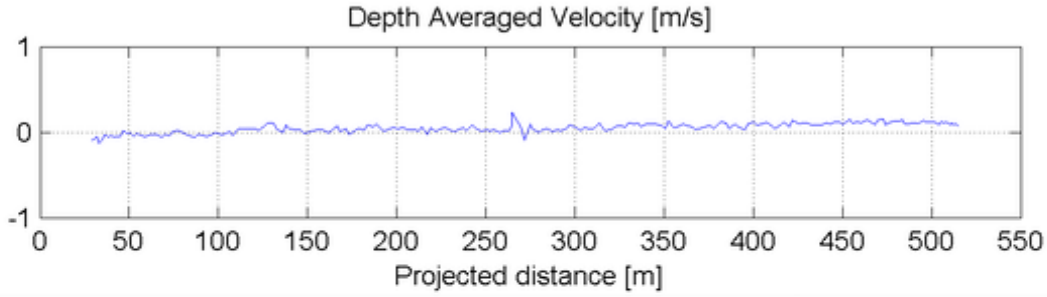
I/RA/11283/08.087/MSA

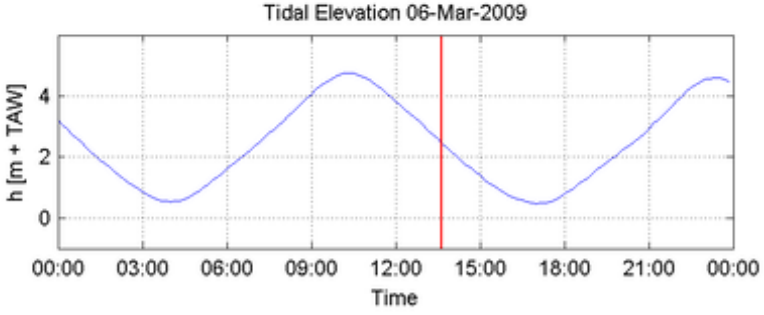
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3090DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:36 - 13:39

Time after HW [HH:MM]
3:17

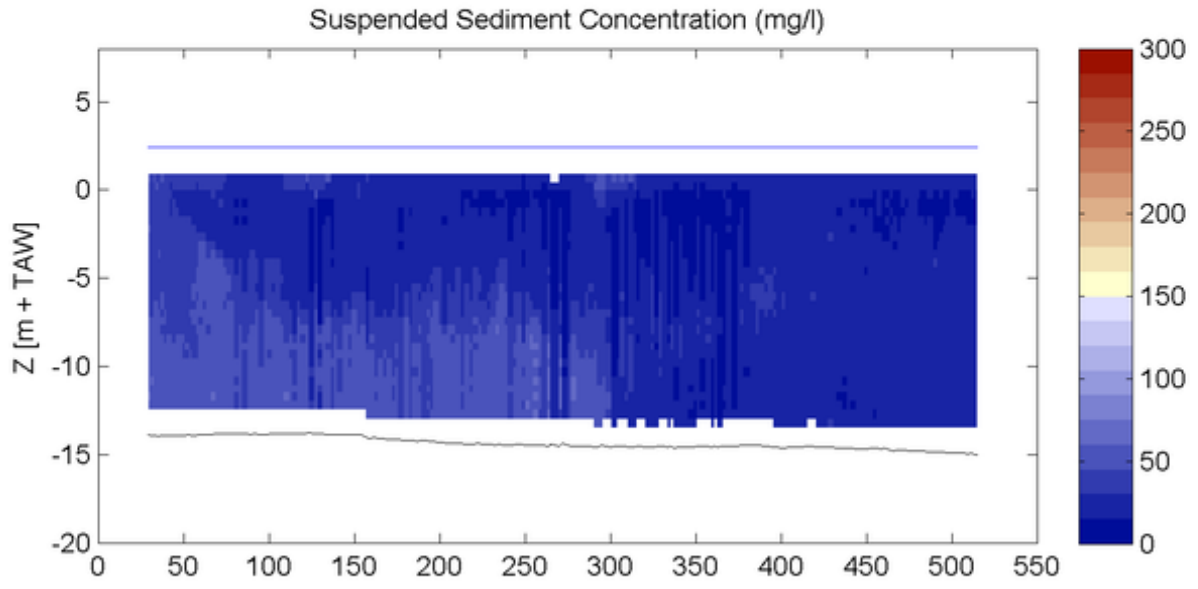
Data Processed by:

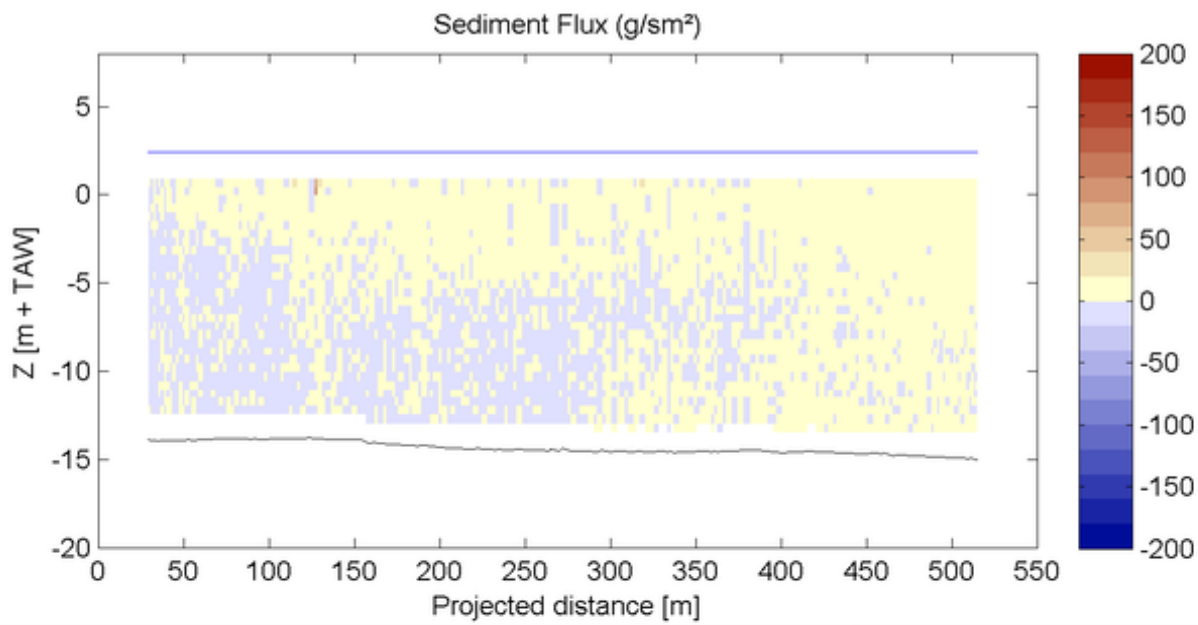
In association with :

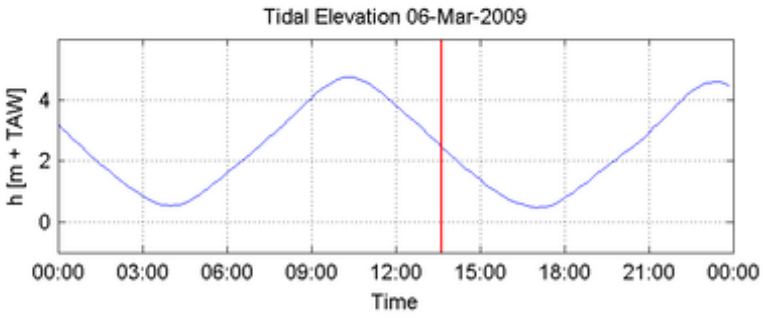
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3090DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:36 - 13:39

Time after HW [HH:MM]
3:17

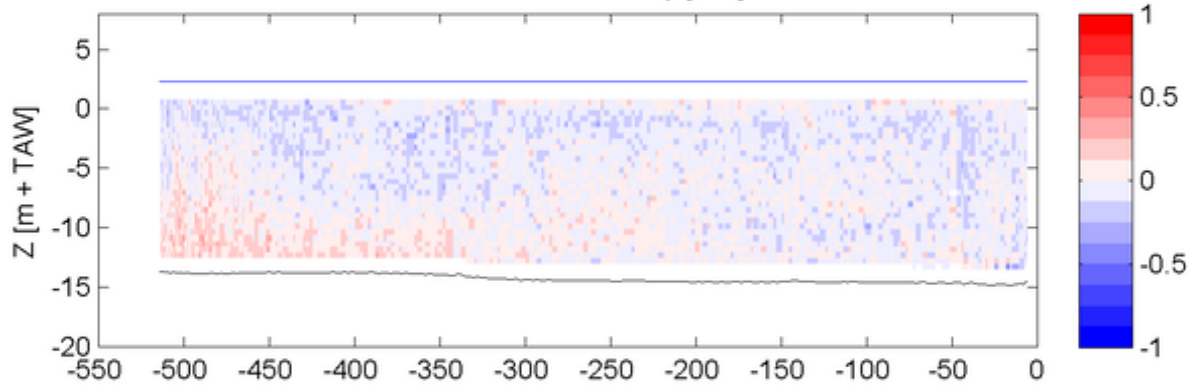
Data Processed by:

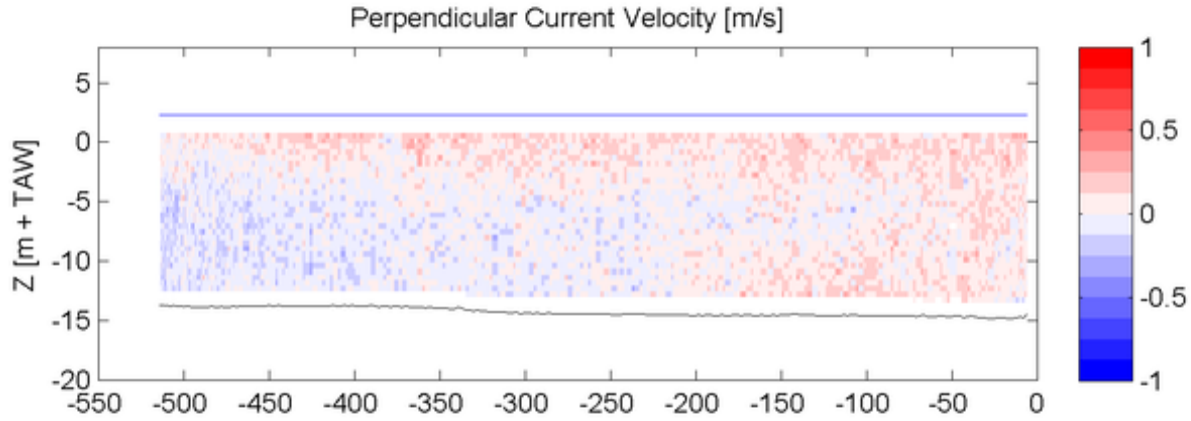
In association with :

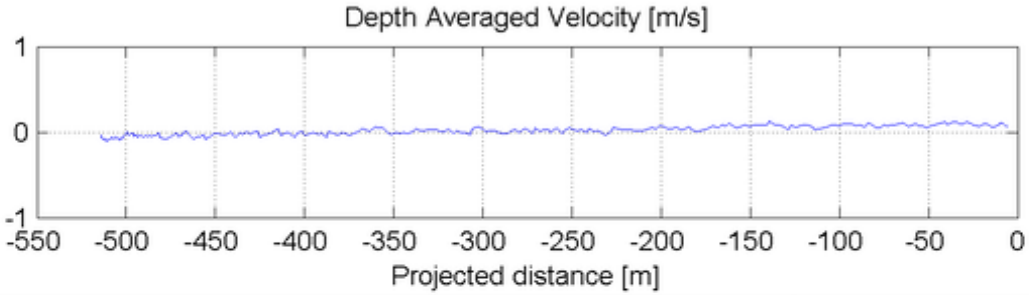
I/RA/11283/08.087/MSA

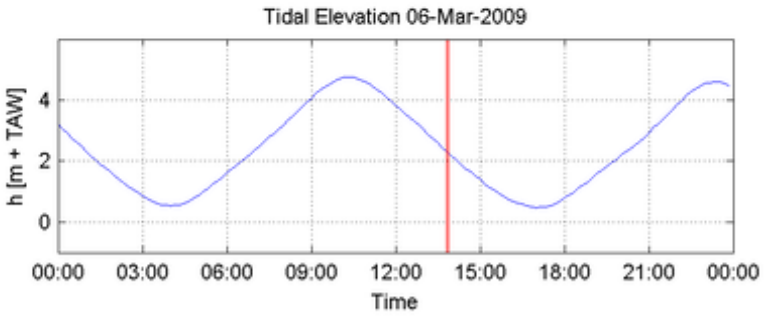
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3092DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:49 - 13:52

Time after HW [HH:MM]
3:30

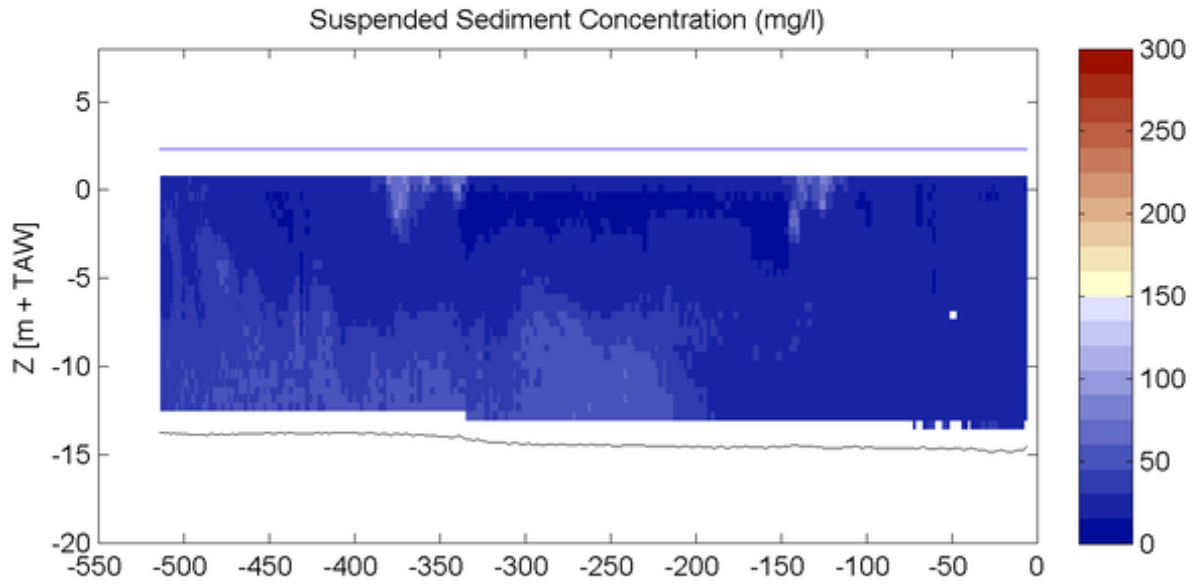
Data Processed by:

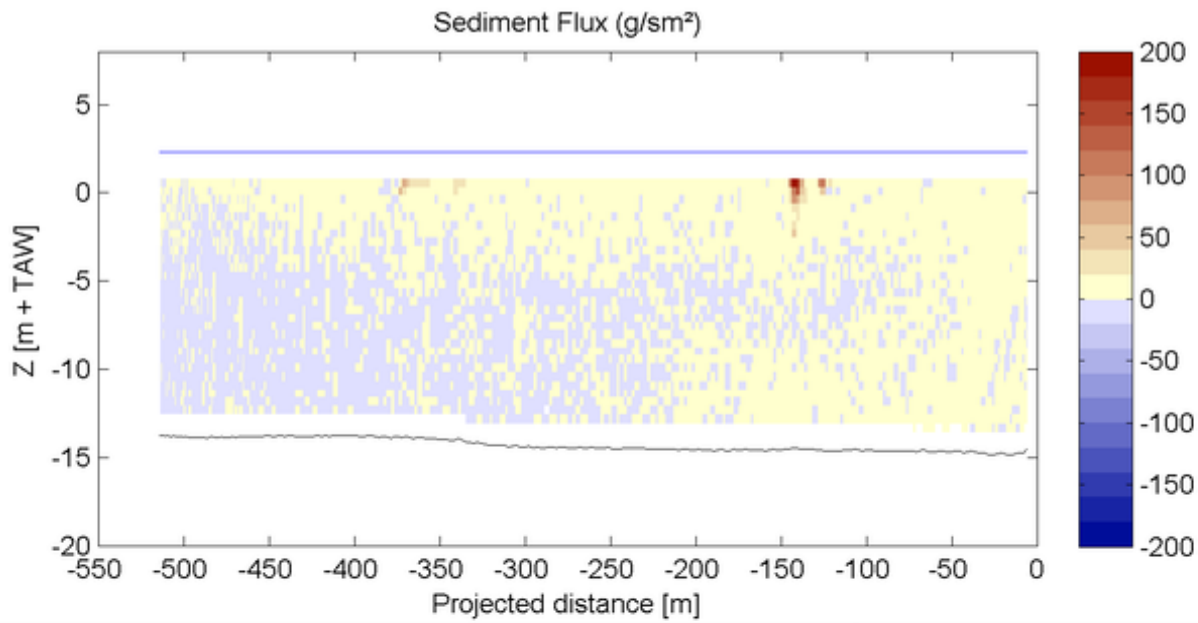
In association with :

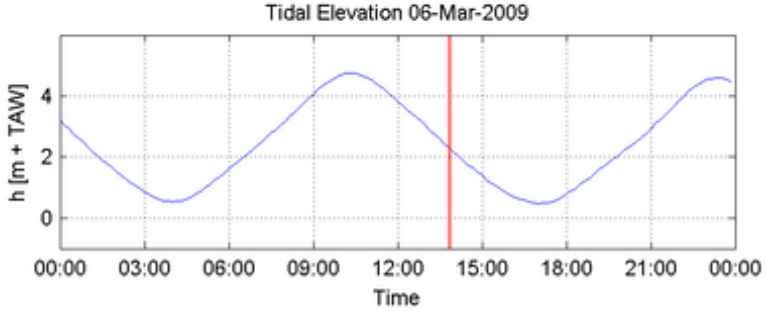
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3092DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:49 - 13:52

Time after HW [HH:MM]
3:30

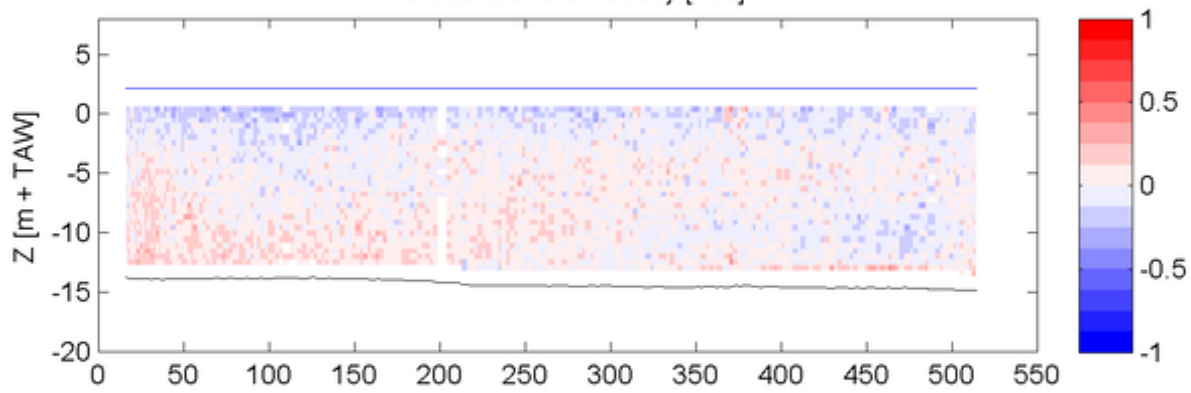
Data Processed by:

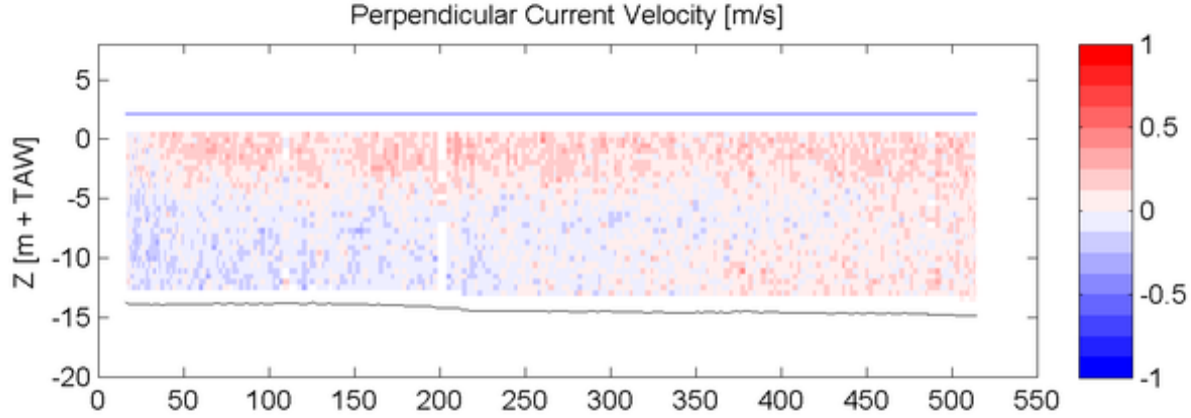
In association with :

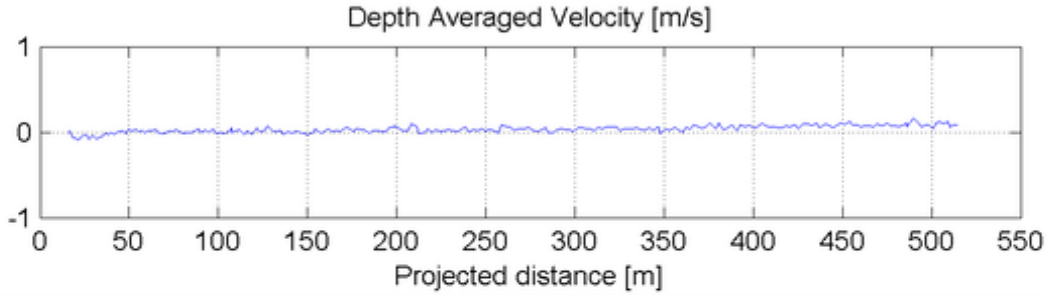
I/RA/11283/08.087/MSA

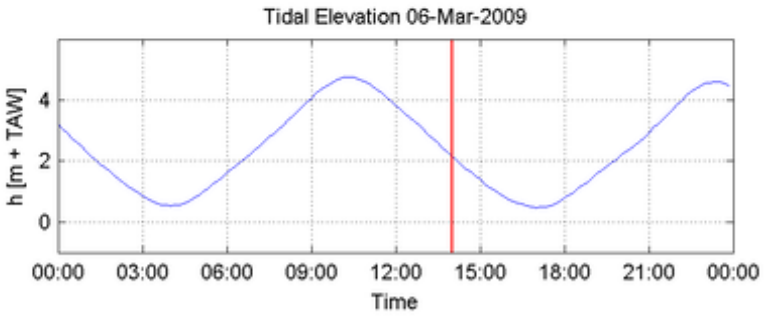
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3094DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:59 - 14:01

Time after HW [HH:MM]
3:40

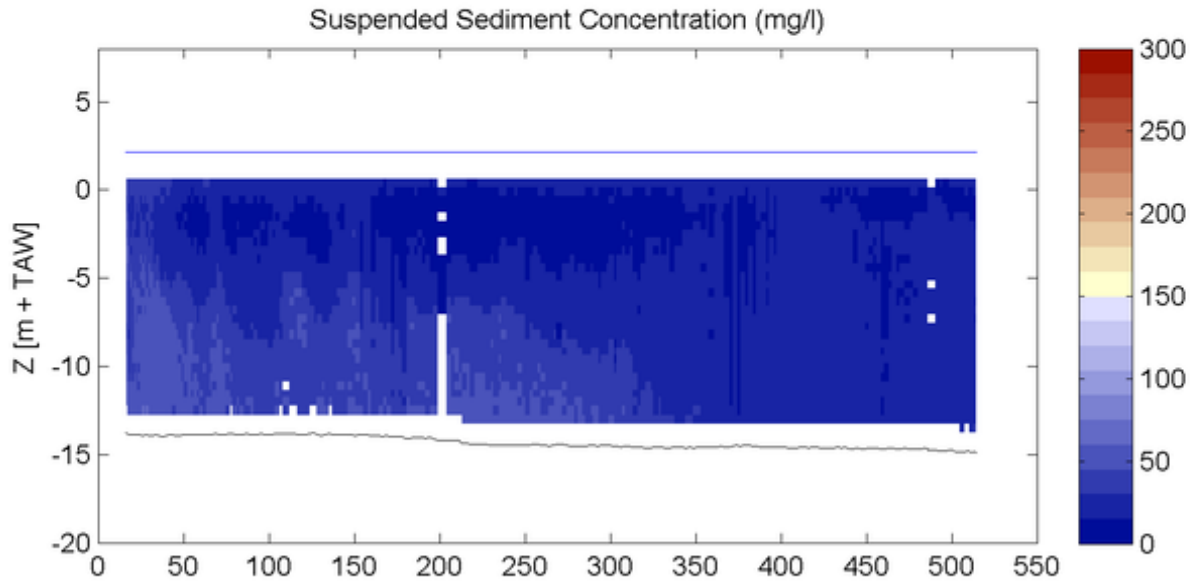
Data Processed by:

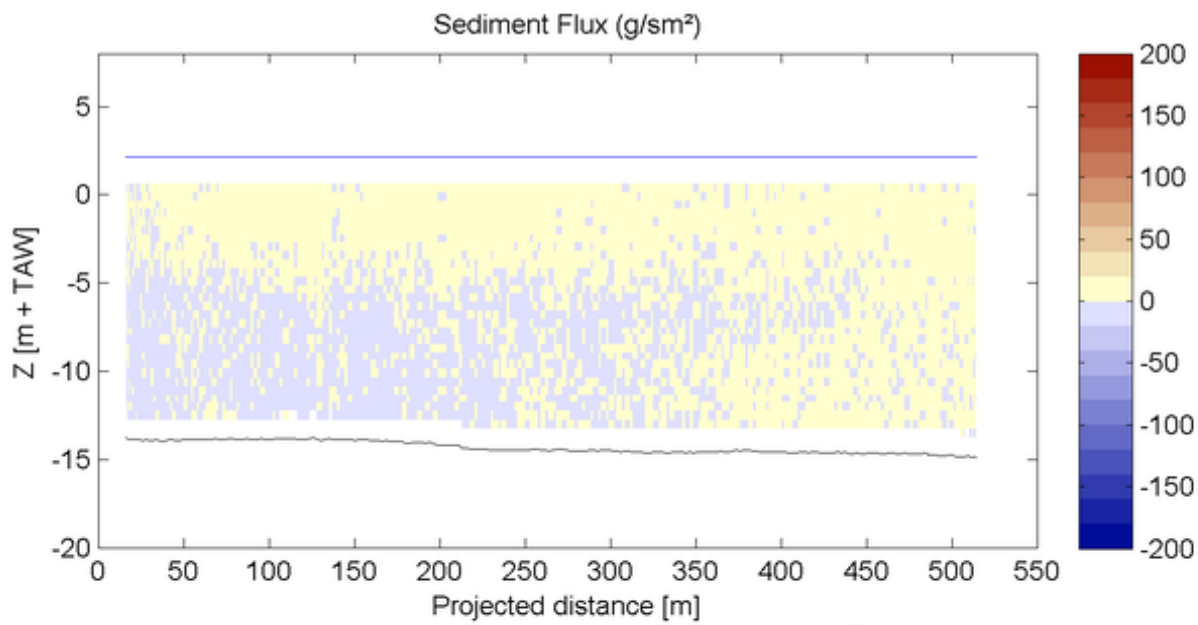
In association with :

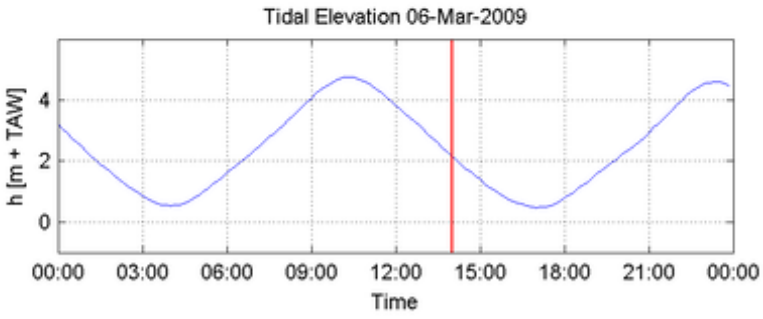
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3094DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
13:59 - 14:01

Time after HW [HH:MM]
3:40

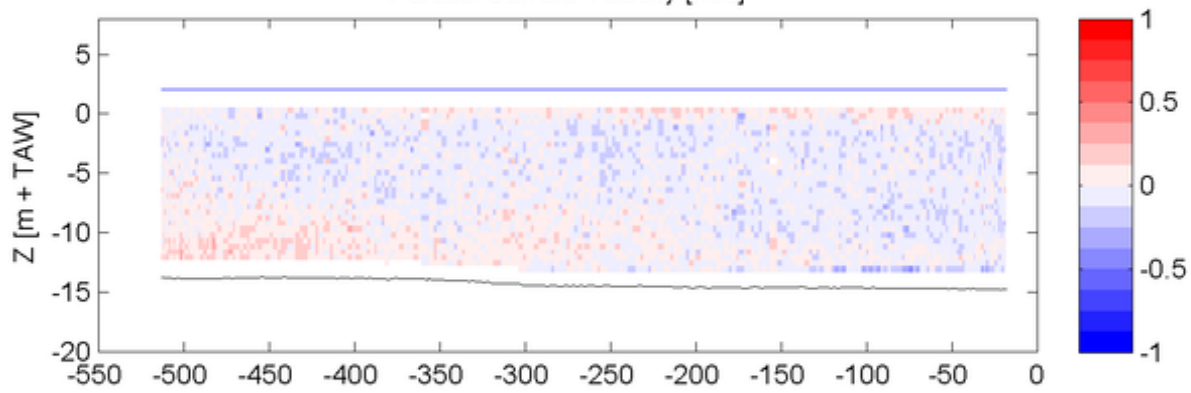
Data Processed by:

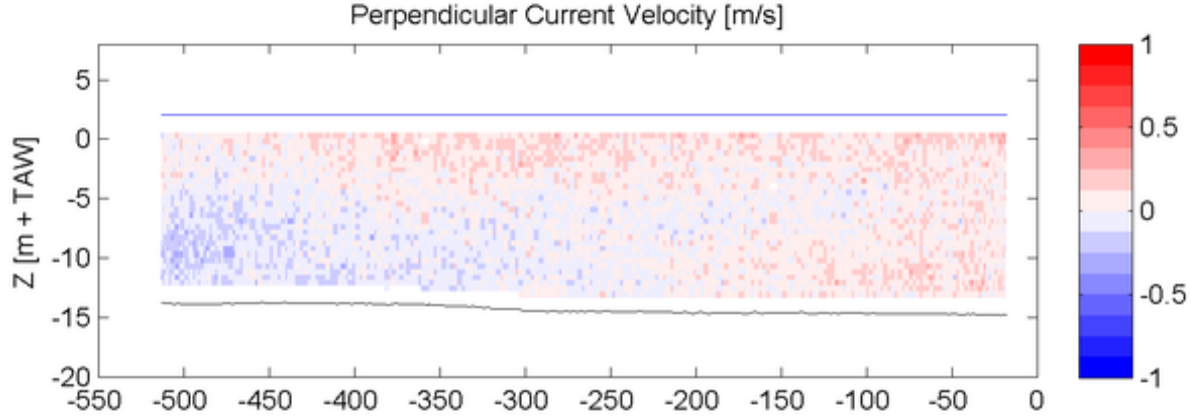
In association with :

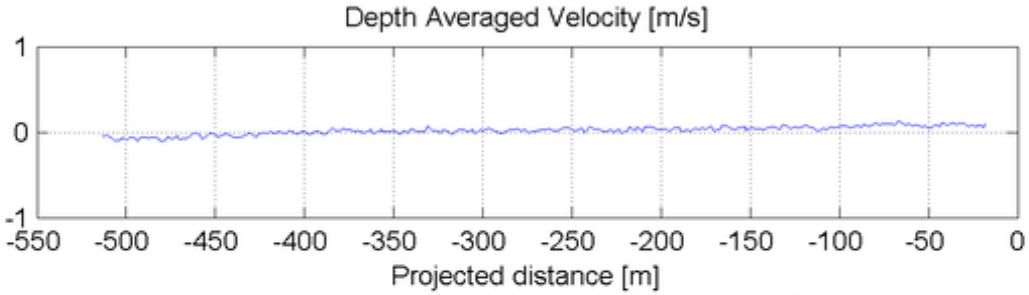
I/RA/11283/08.087/MSA

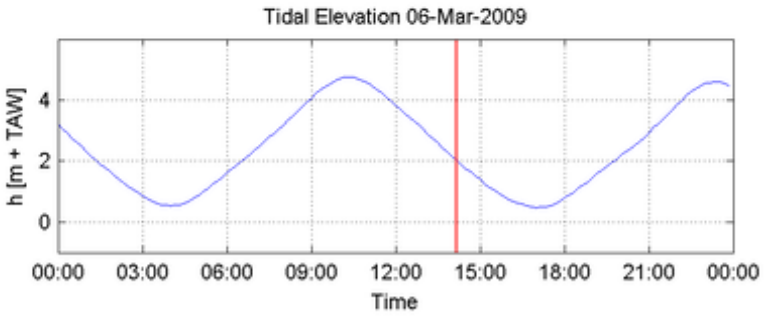
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3096DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
14:07 - 14:10

Time after HW [HH:MM]
3:49

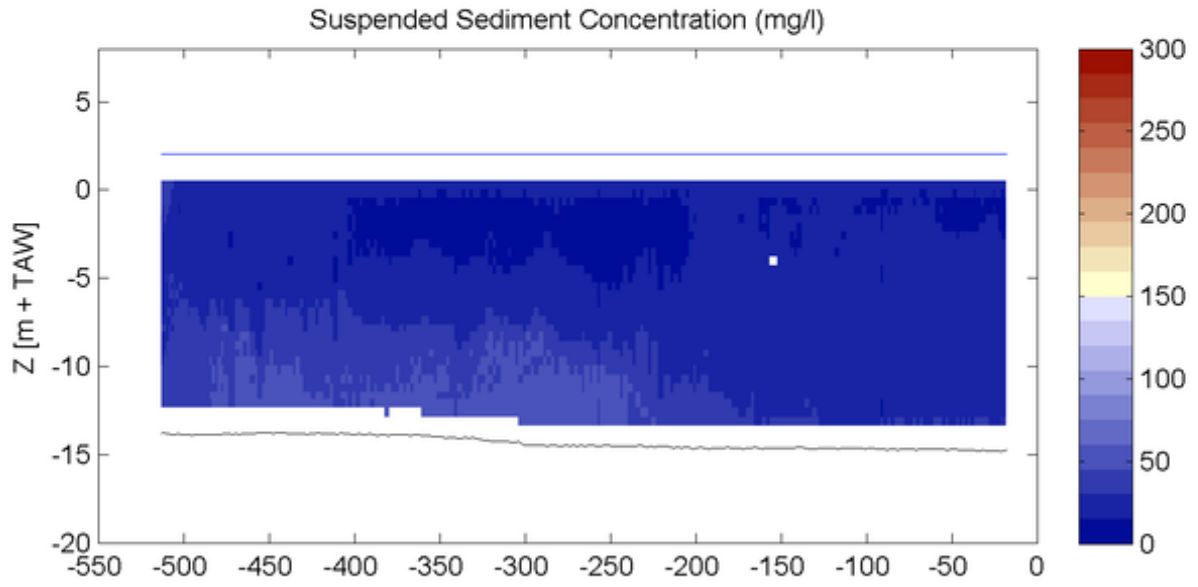
Data Processed by:

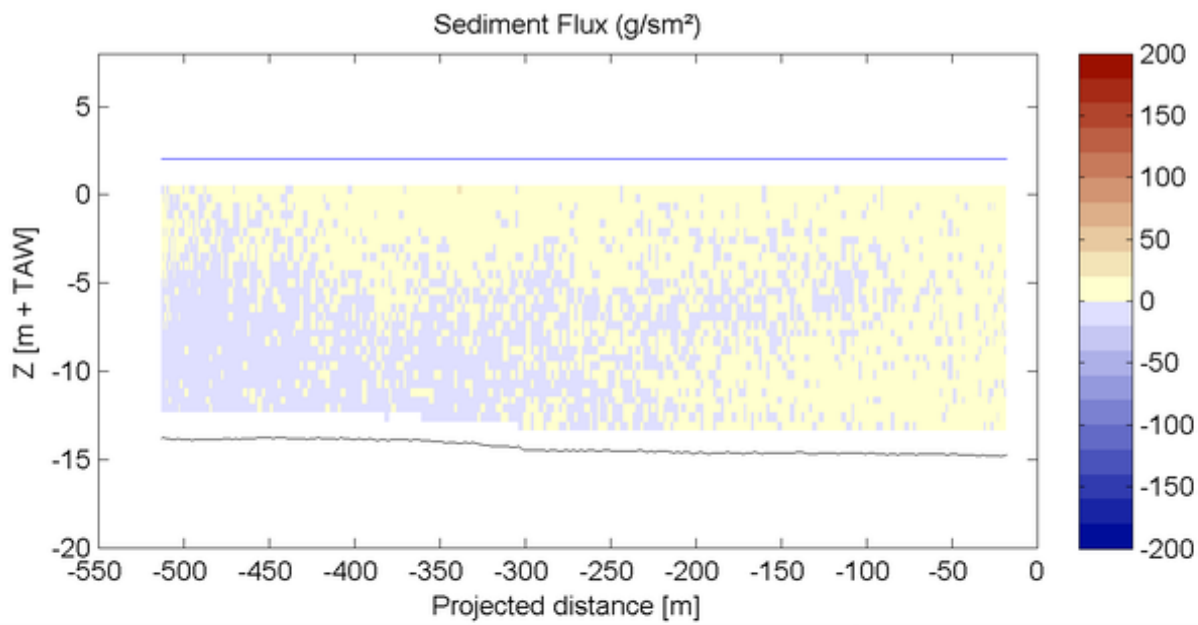
In association with :

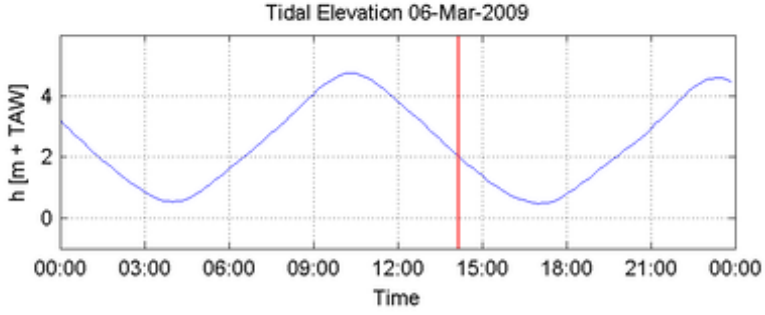
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3096DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
14:07 - 14:10

Time after HW [HH:MM]
3:49

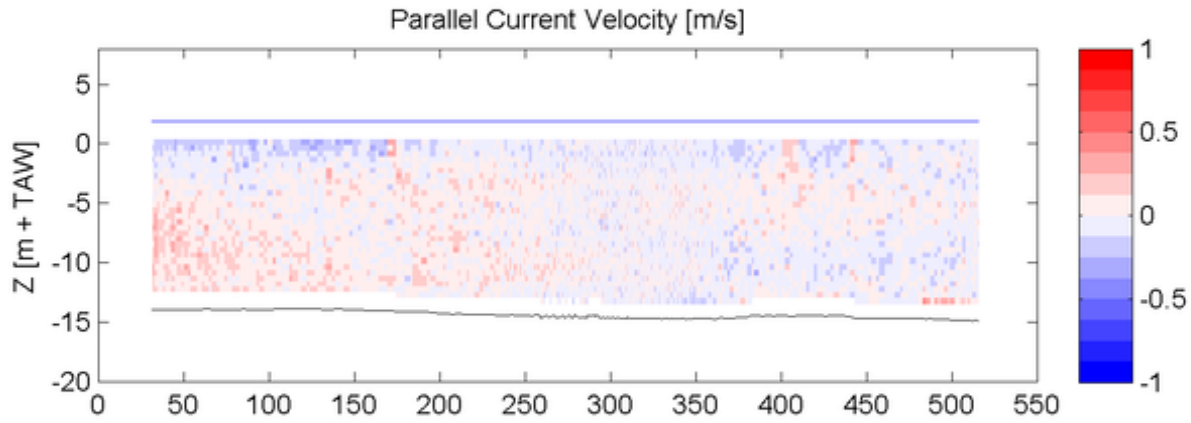
Data Processed by:

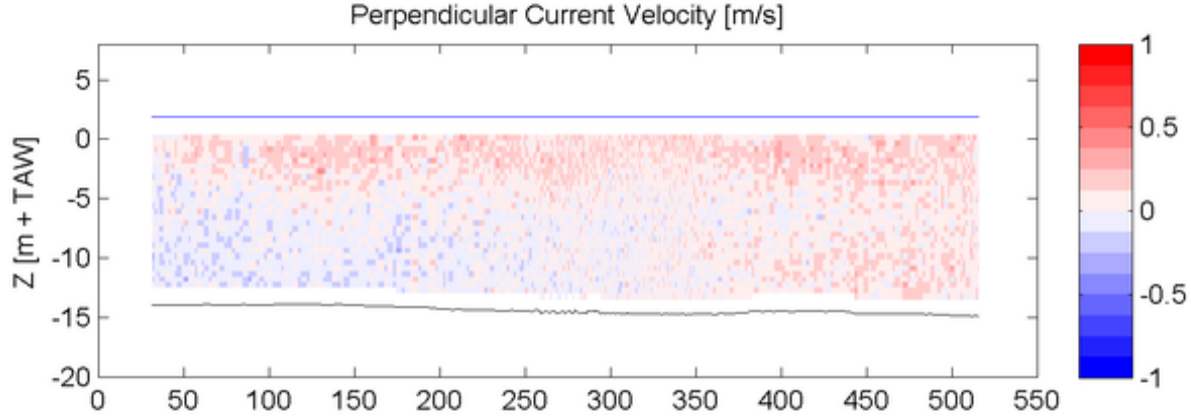
In association with :

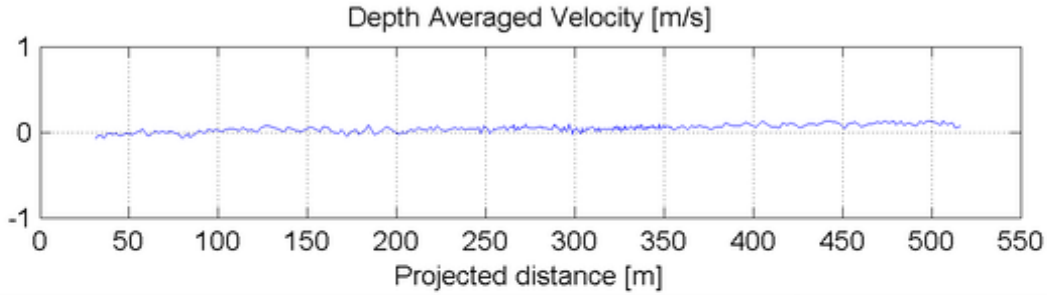
I/RA/11283/08.087/MSA

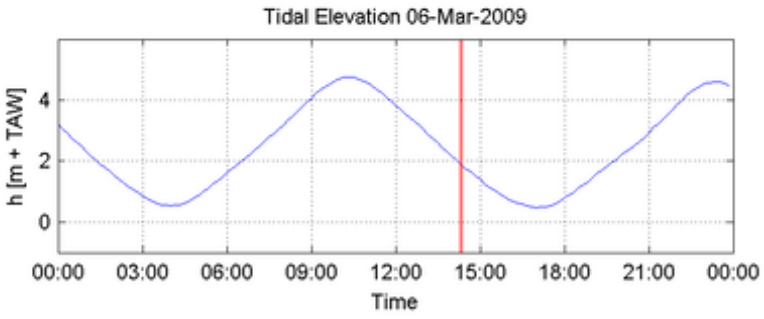
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3098DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
14:16 - 14:20

Time after HW [HH:MM]
3:58

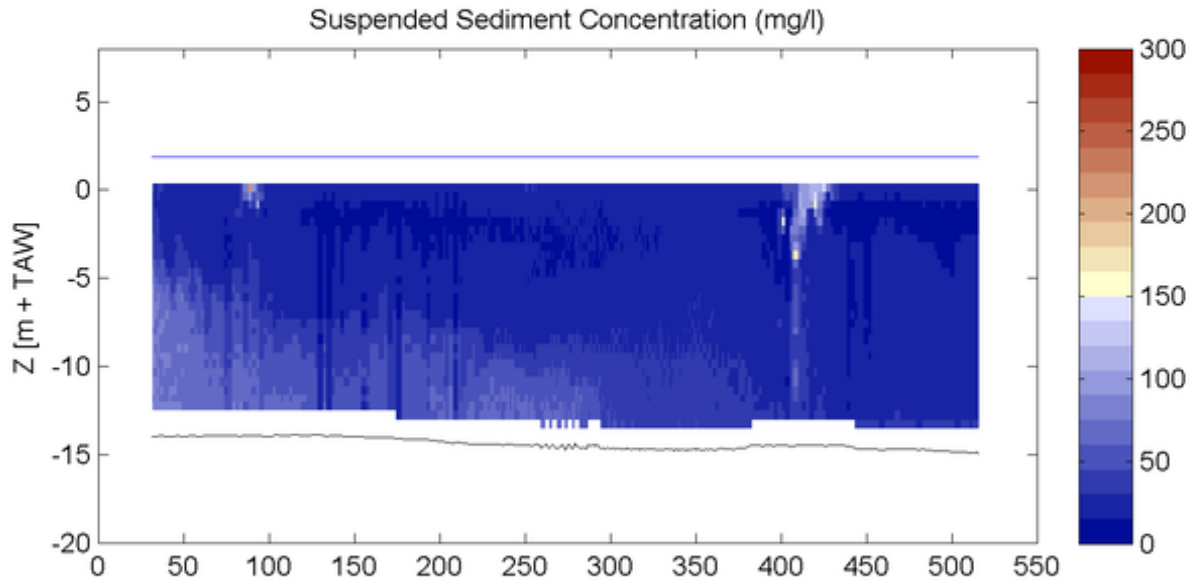
Data Processed by:

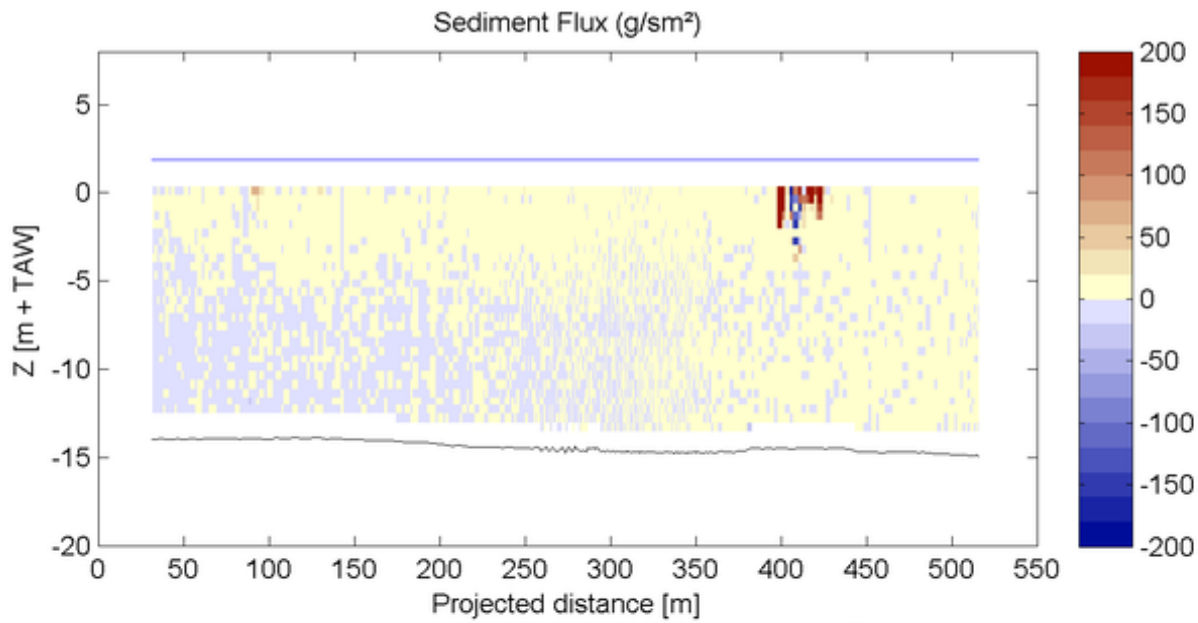
In association with :

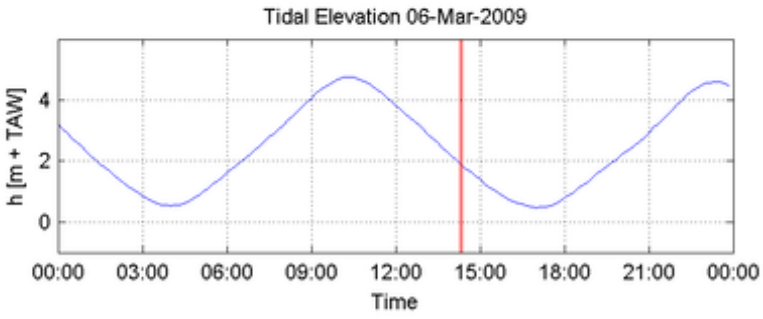
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3098DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
14:16 - 14:20

Time after HW [HH:MM]
3:58

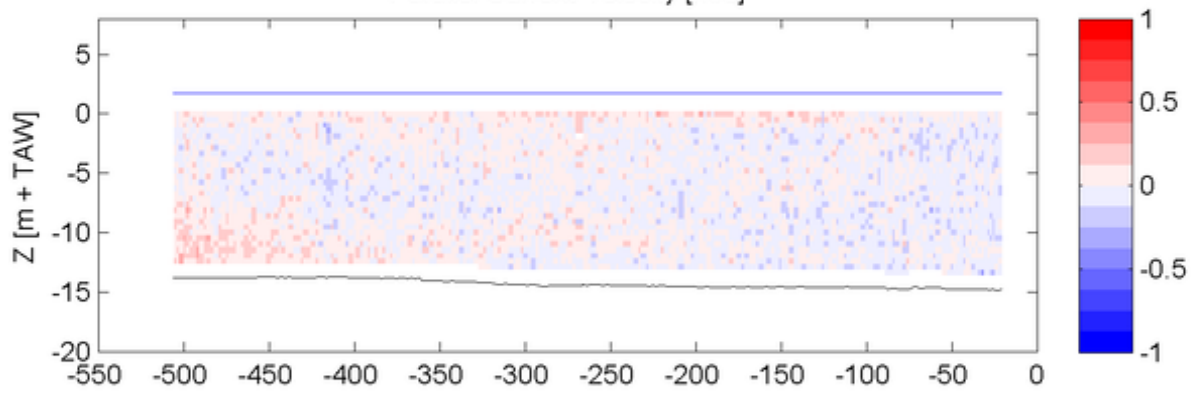
Data Processed by:

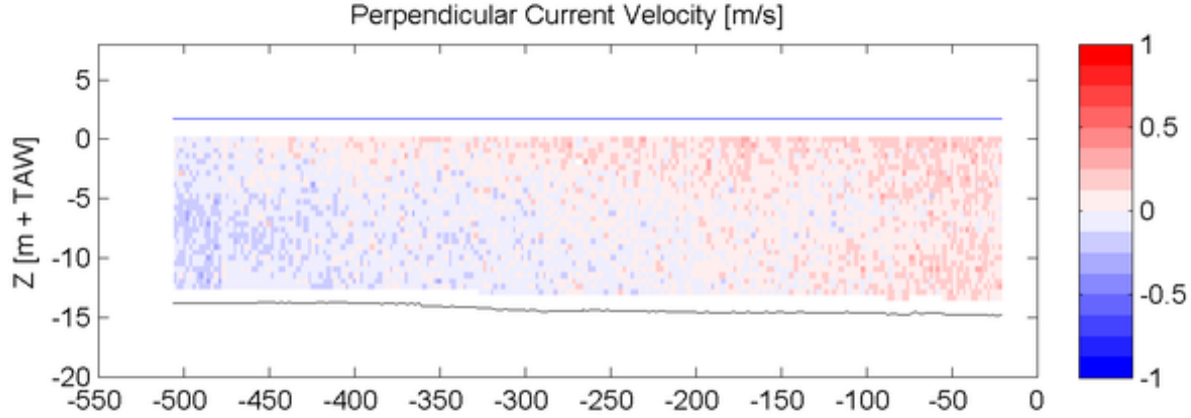
In association with :

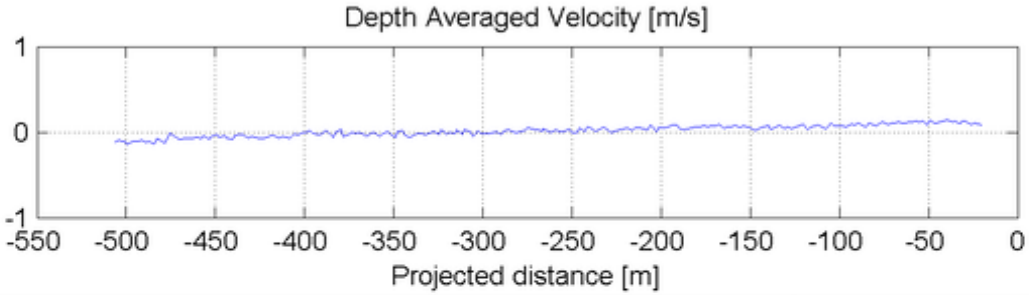
I/RA/11283/08.087/MSA

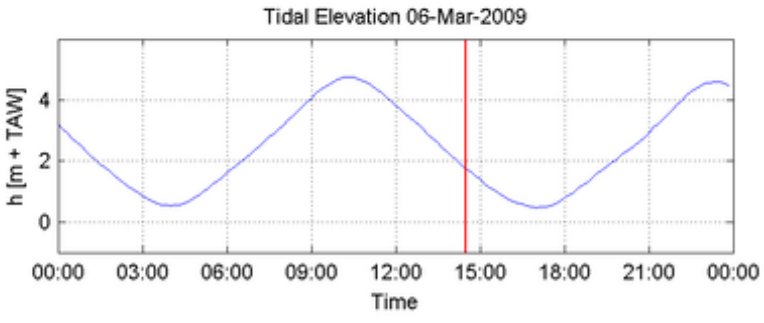
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3100DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
14:27 - 14:30

Time after HW [HH:MM]
4:09

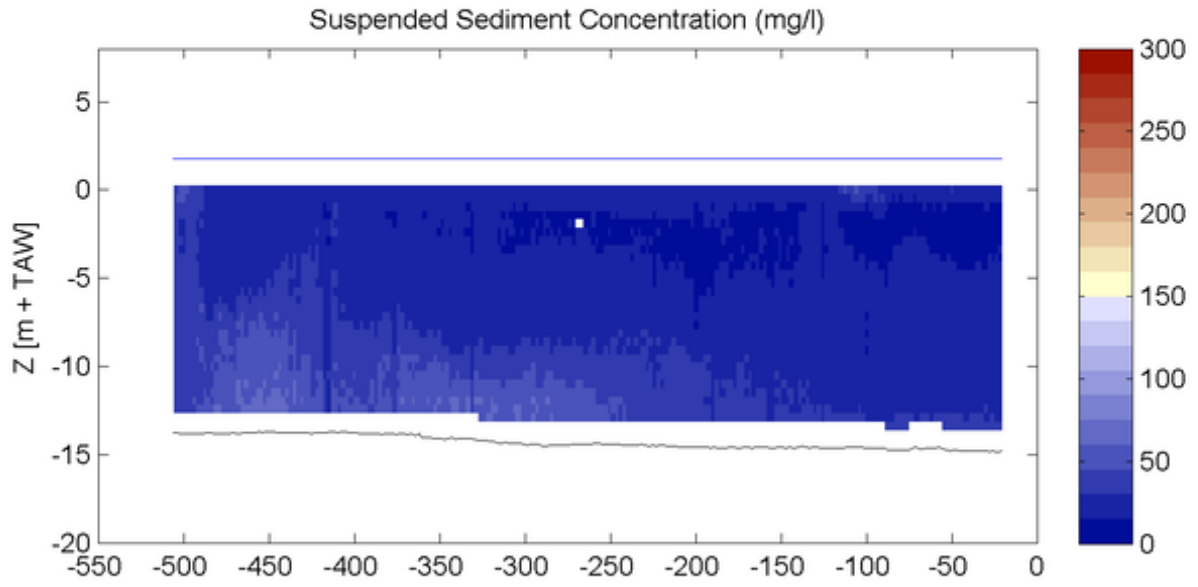
Data Processed by:

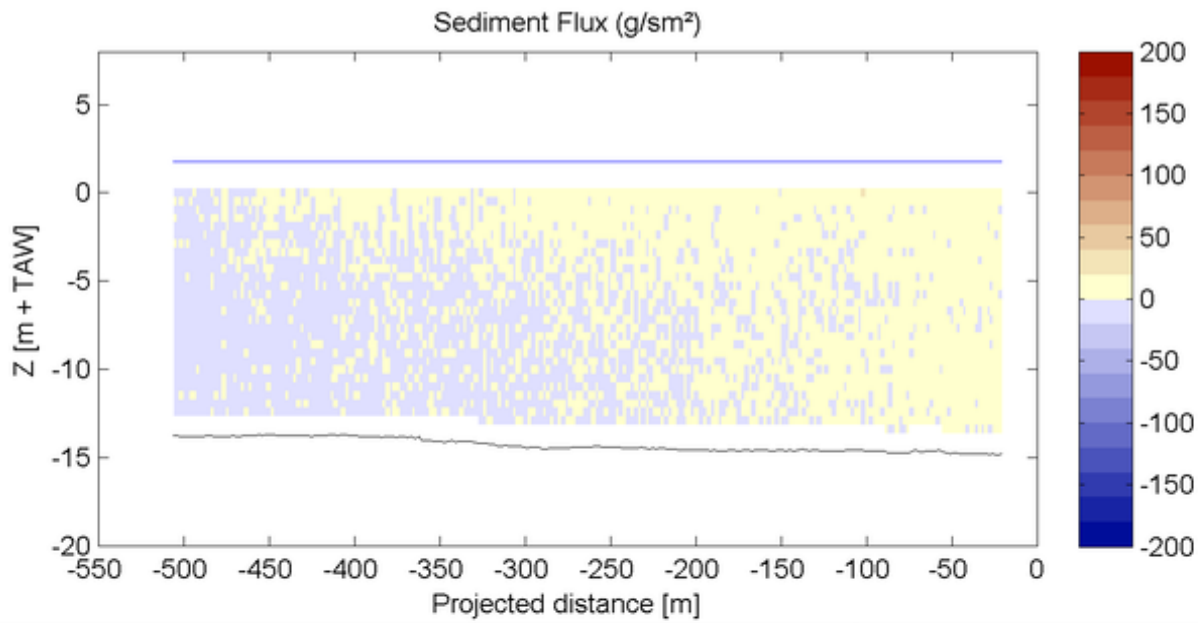
In association with :

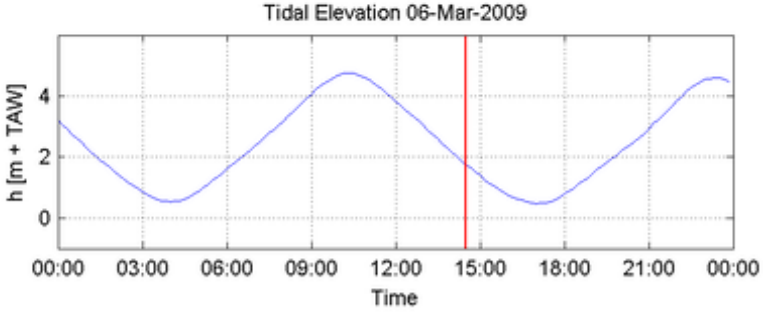
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3100DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
14:27 - 14:30

Time after HW [HH:MM]
4:09

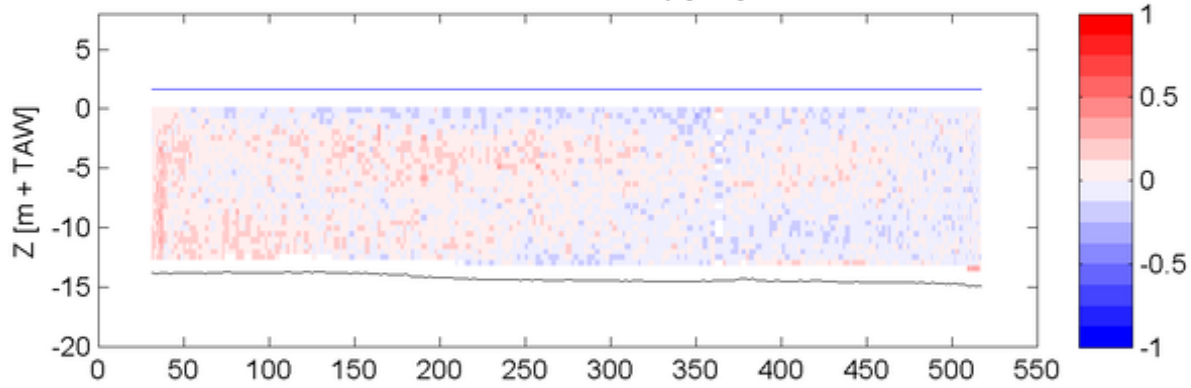
Data Processed by:

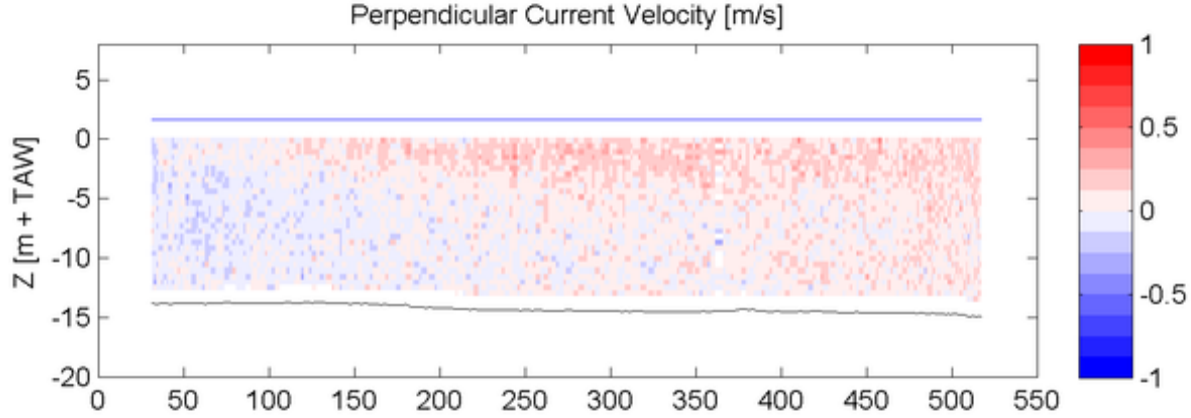
In association with :

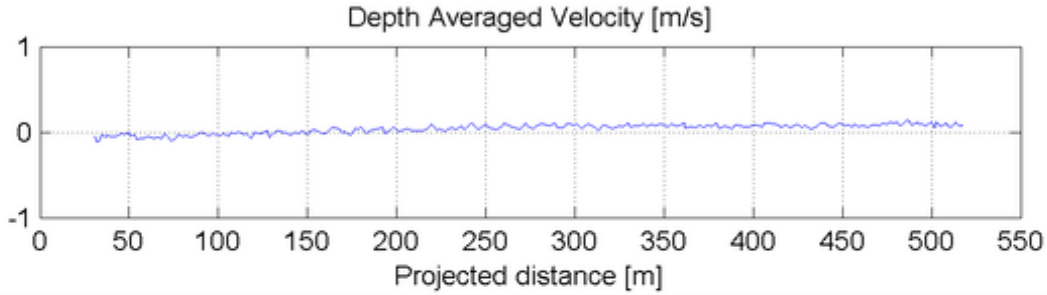
I/RA/11283/08.087/MSA

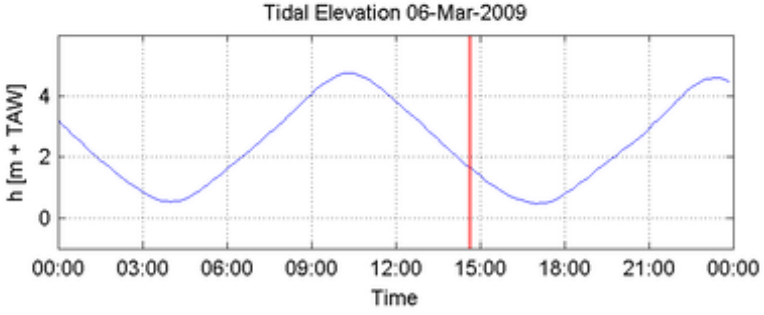
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3102DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
14:37 - 14:40

Time after HW [HH:MM]
4:18

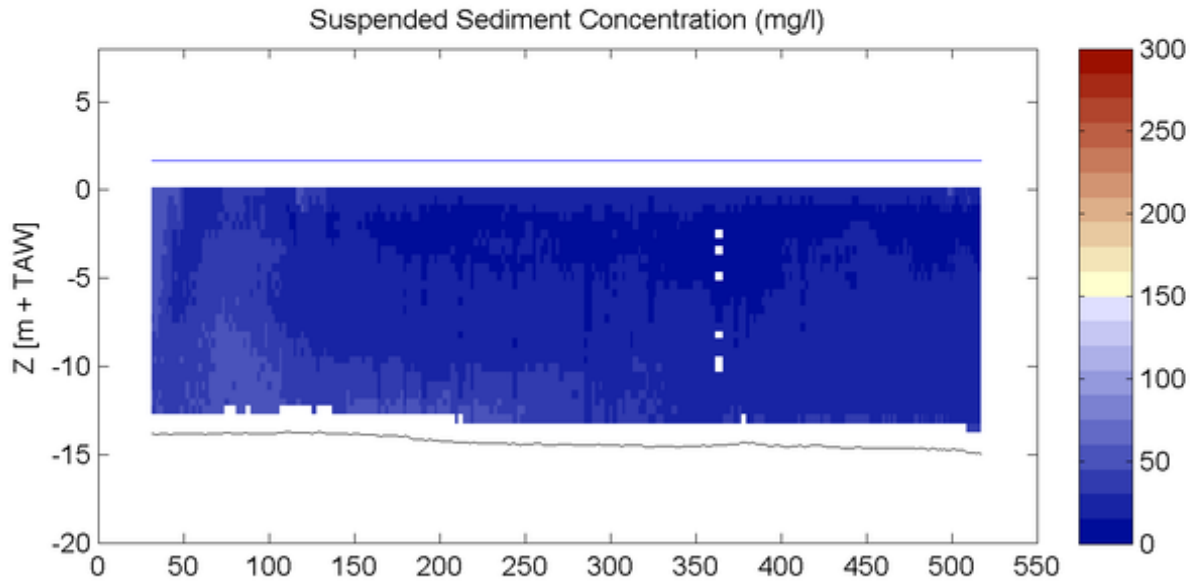
Data Processed by:

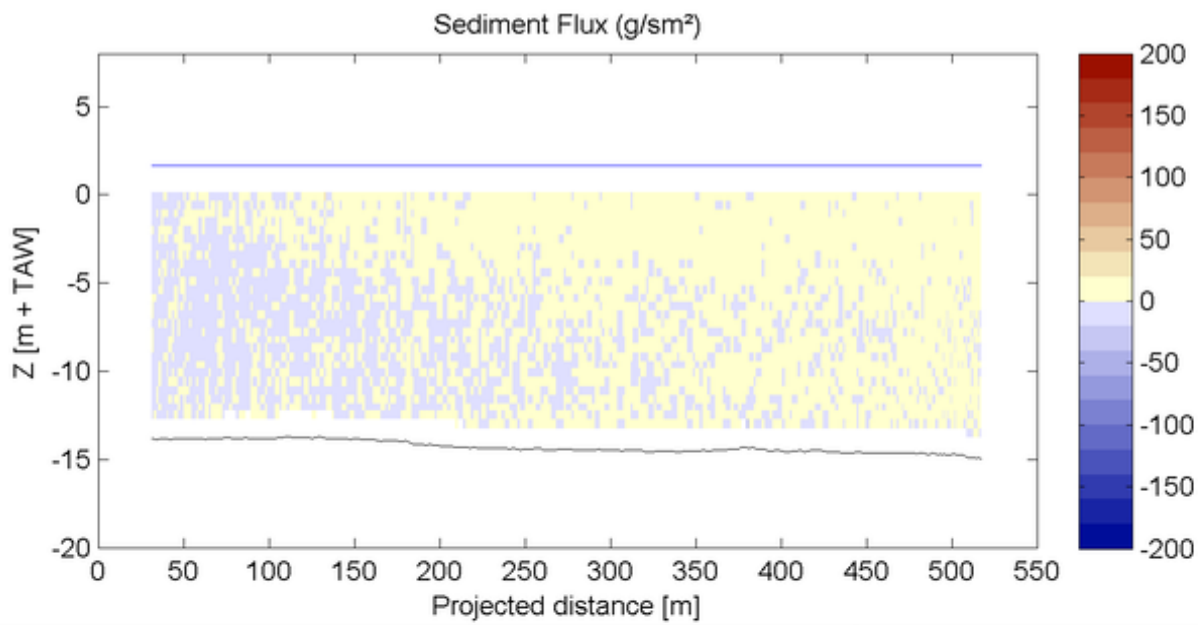
In association with :

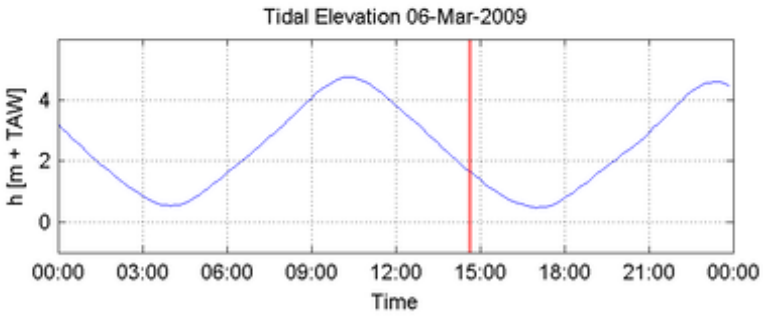
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3102DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
14:37 - 14:40

Time after HW [HH:MM]
4:18

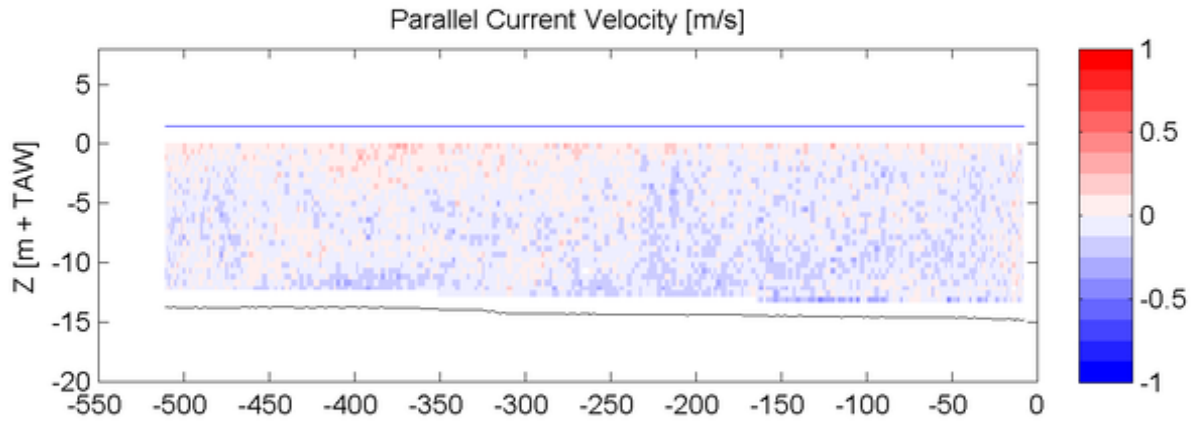
Data Processed by:

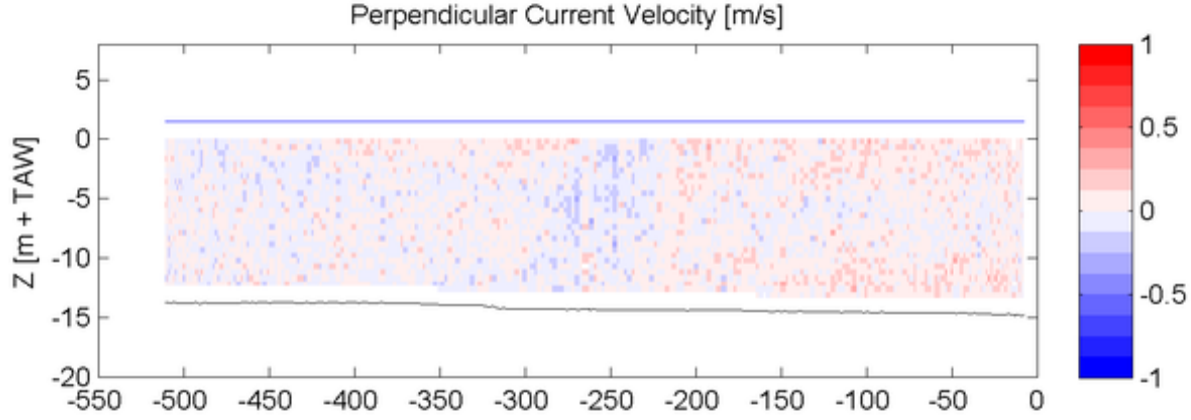
In association with :

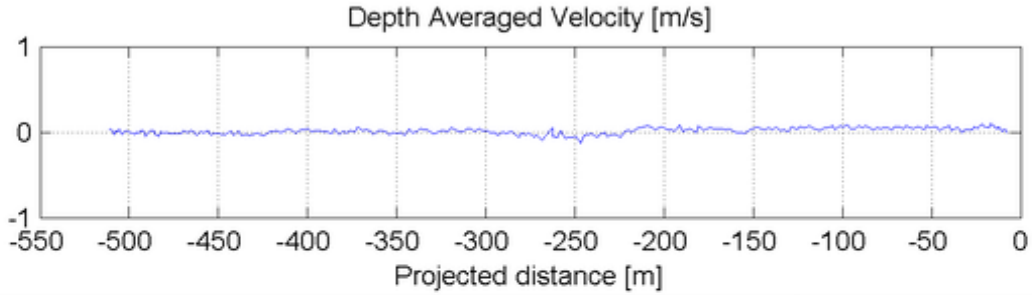
I/RA/11283/08.087/MSA

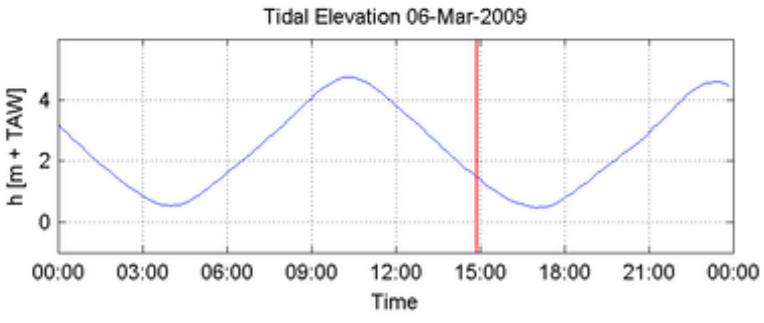
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3104DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
14:51 - 14:54

Time after HW [HH:MM]
4:33

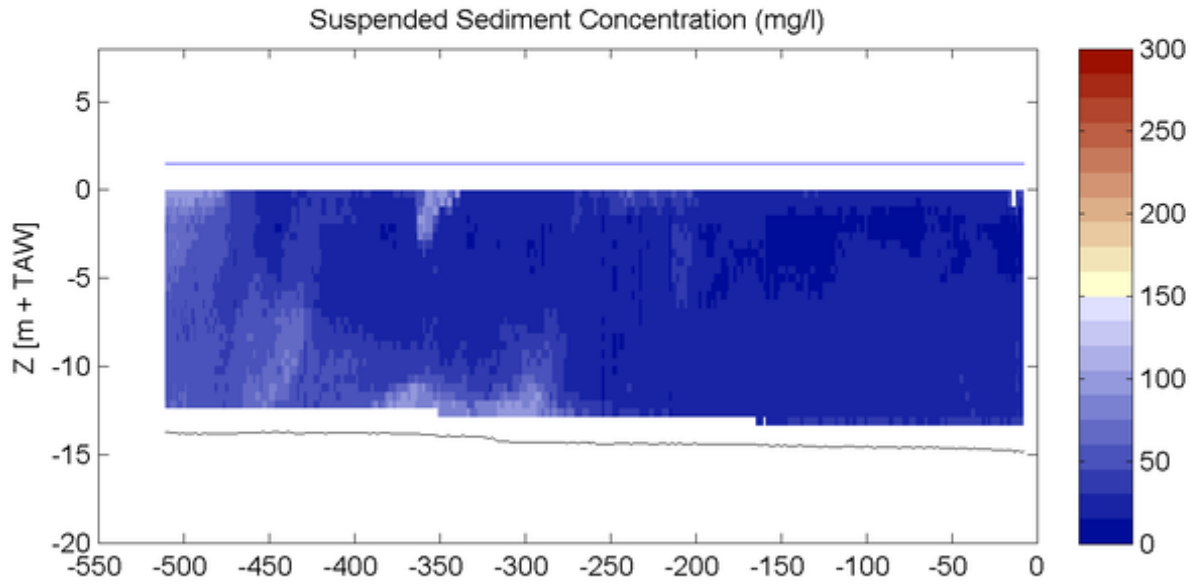
Data Processed by:

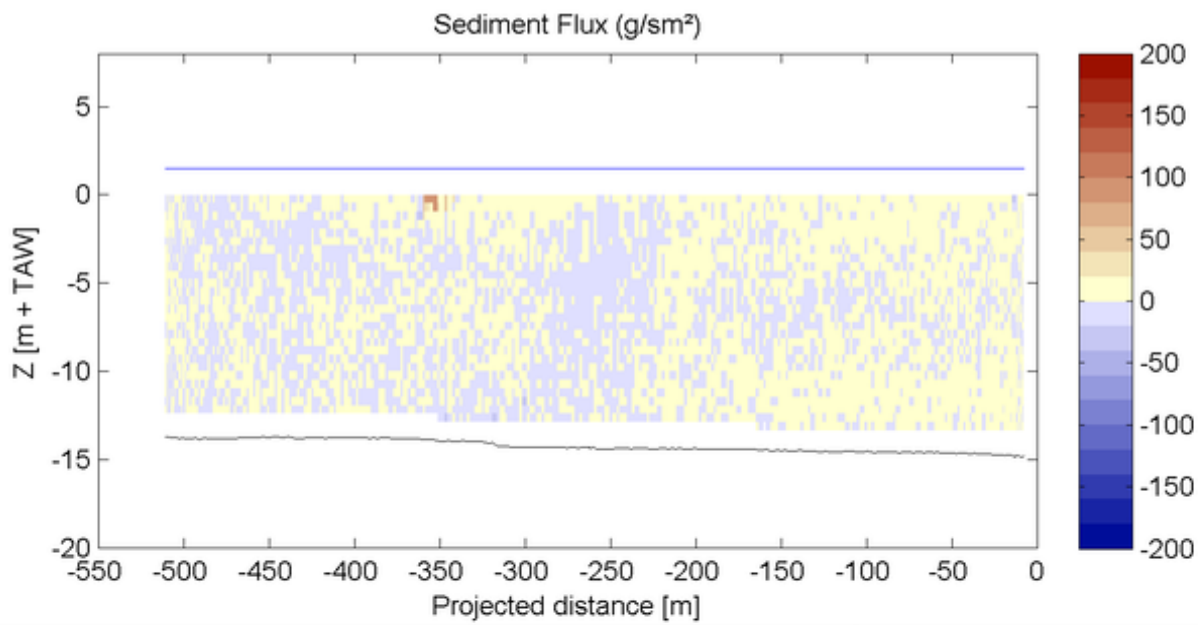
In association with :

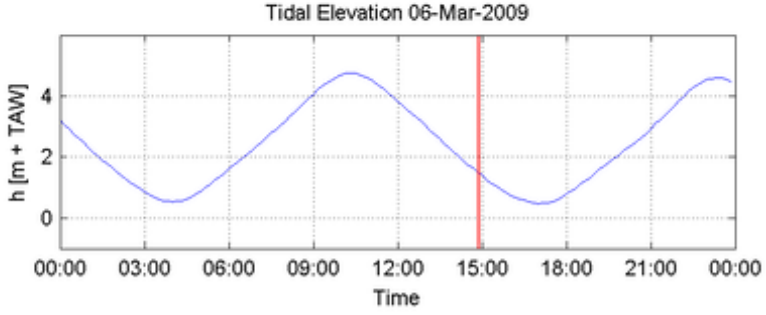
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3104DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
14:51 - 14:54

Time after HW [HH:MM]
4:33

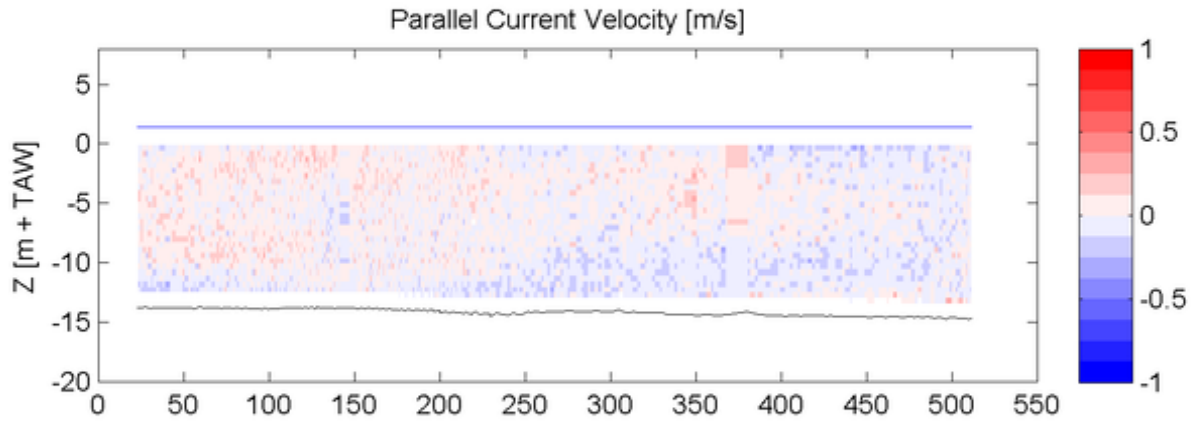
Data Processed by:

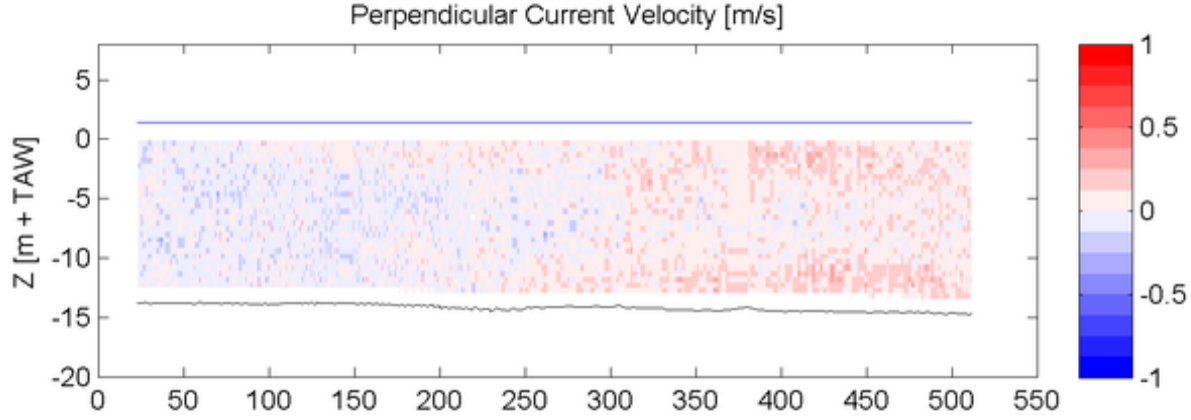
In association with :

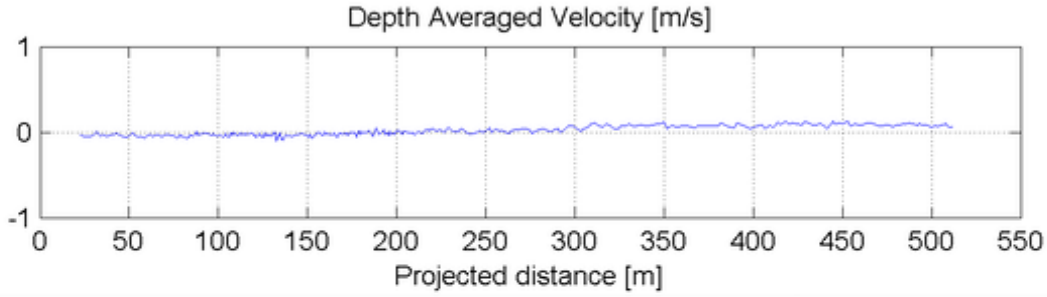
I/RA/11283/08.087/MSA

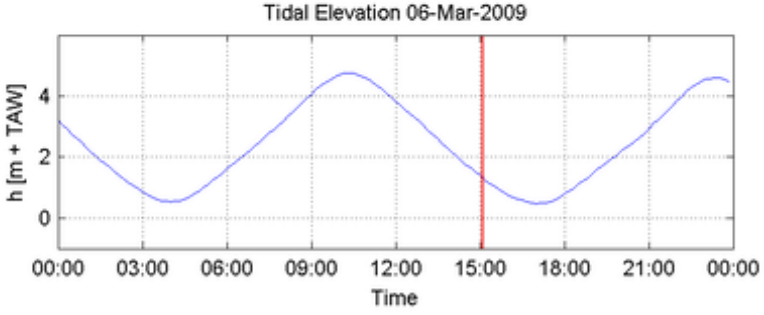
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3106DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:02 - 15:07

Time after HW [HH:MM]
4:45

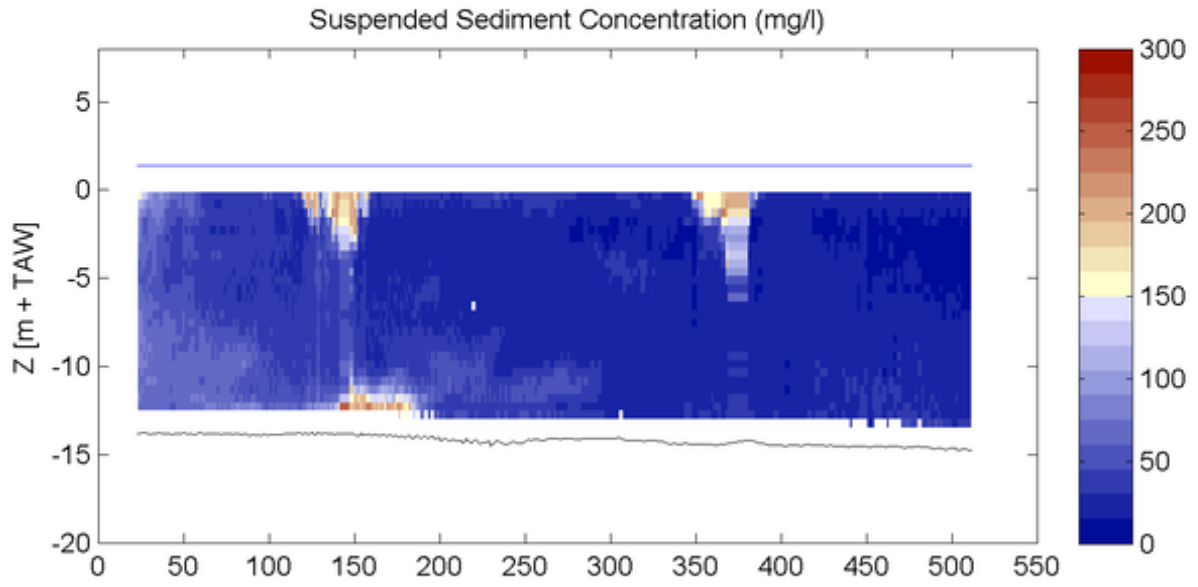
Data Processed by:

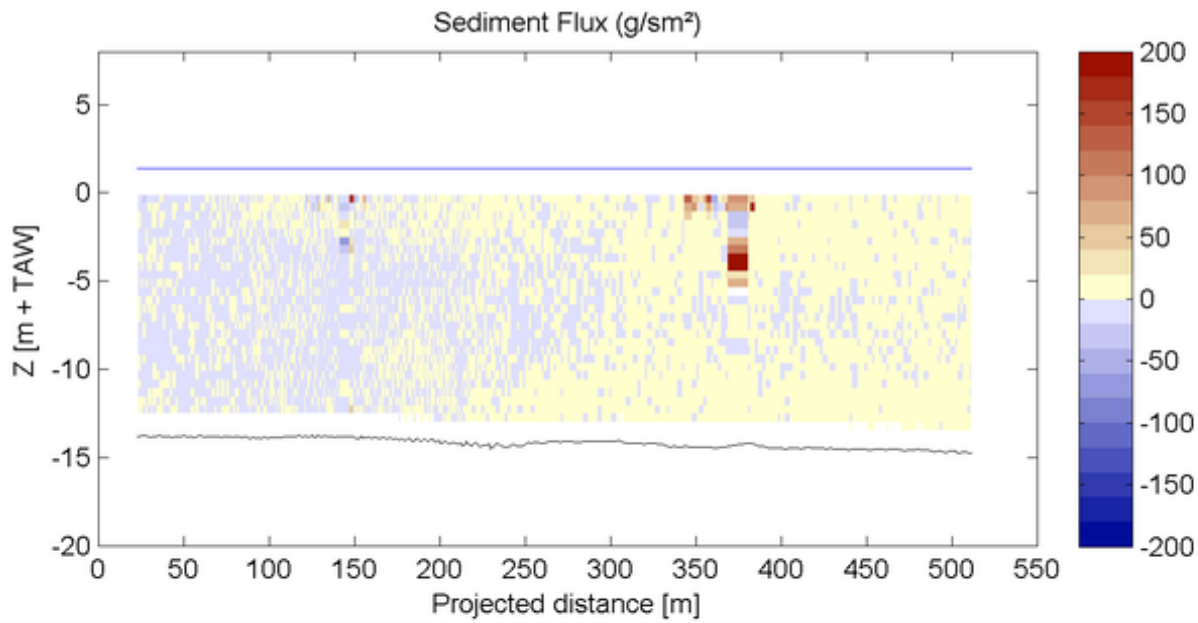
In association with :

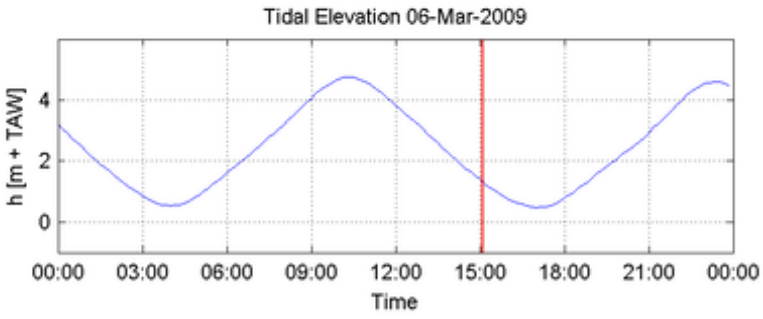
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3106DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:02 - 15:07

Time after HW [HH:MM]
4:45

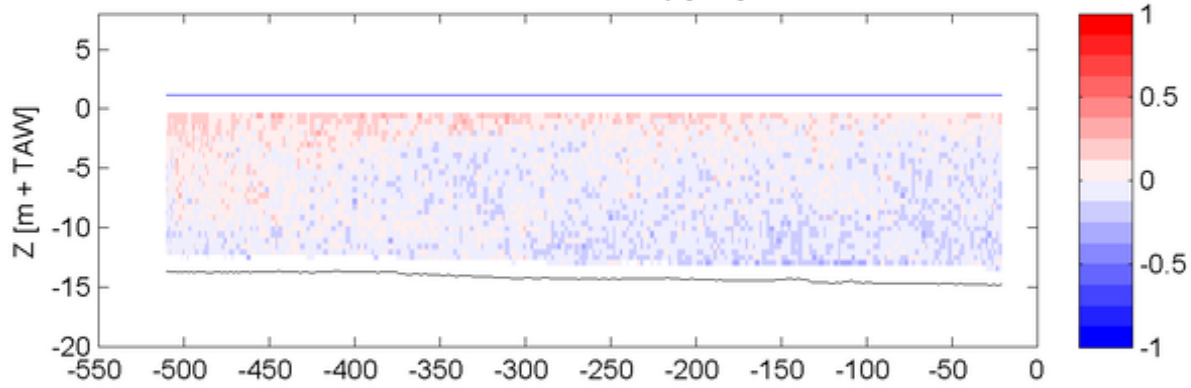
Data Processed by:

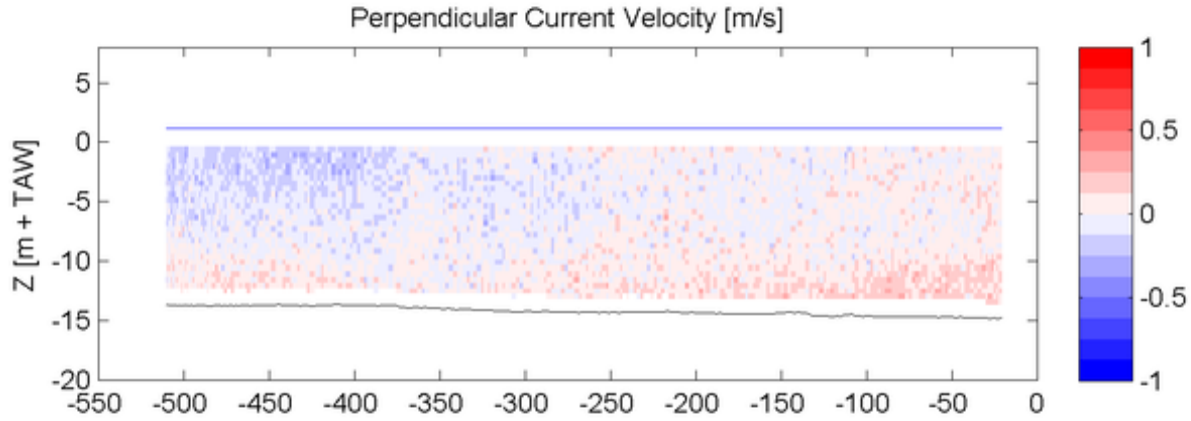
In association with :

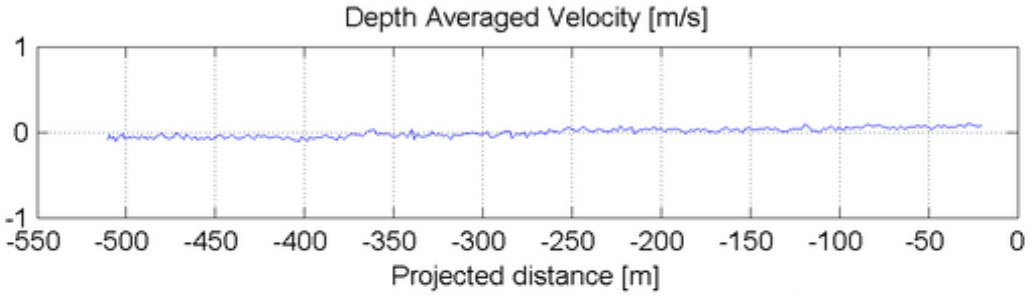
I/RA/11283/08.087/MSA

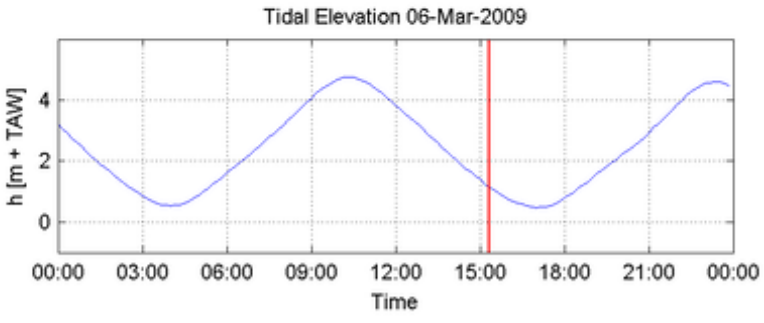
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3108DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:17 - 15:20

Time after HW [HH:MM]
4:59

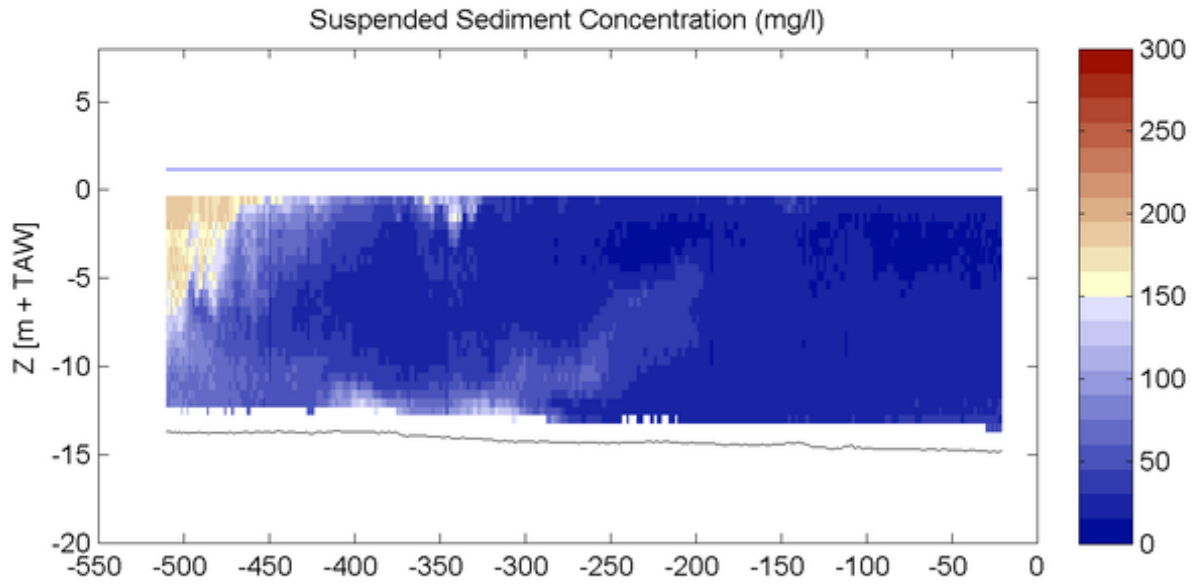
Data Processed by:

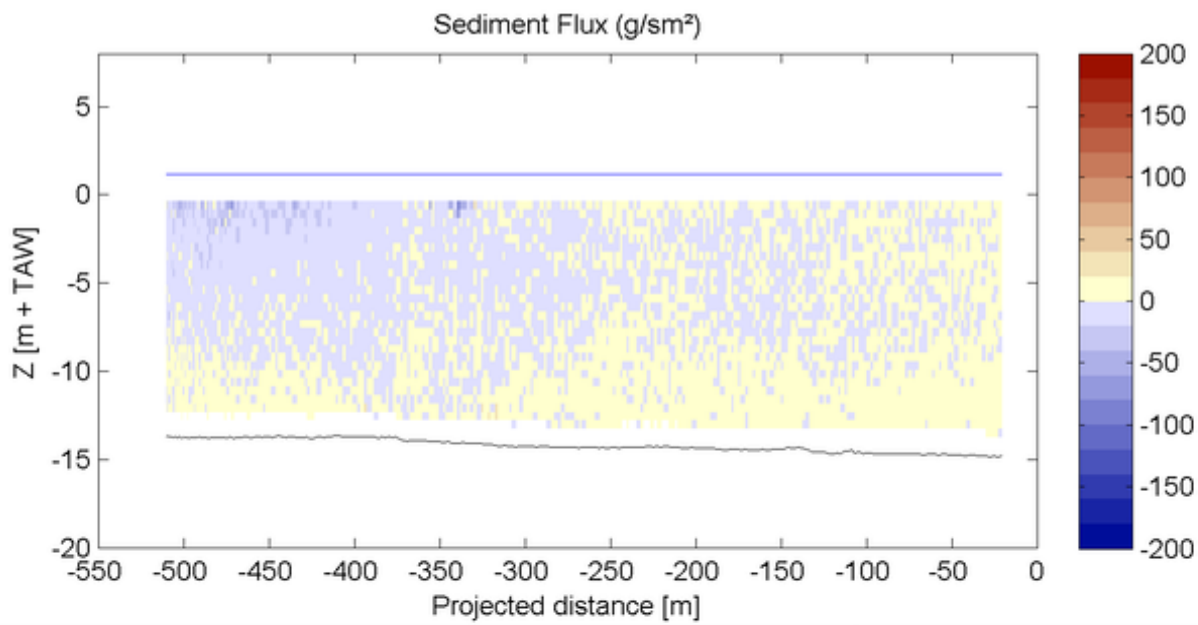
In association with :

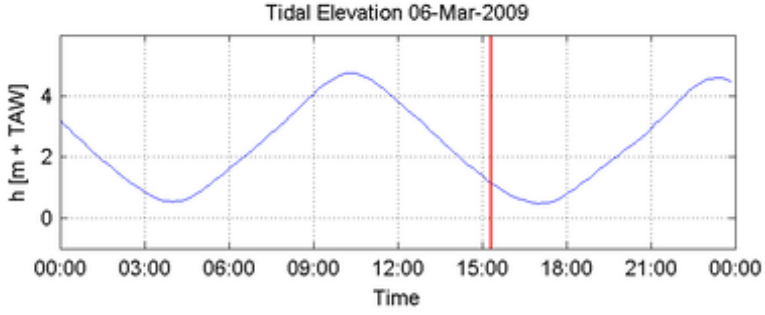
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3108DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:17 - 15:20

Time after HW [HH:MM]
4:59

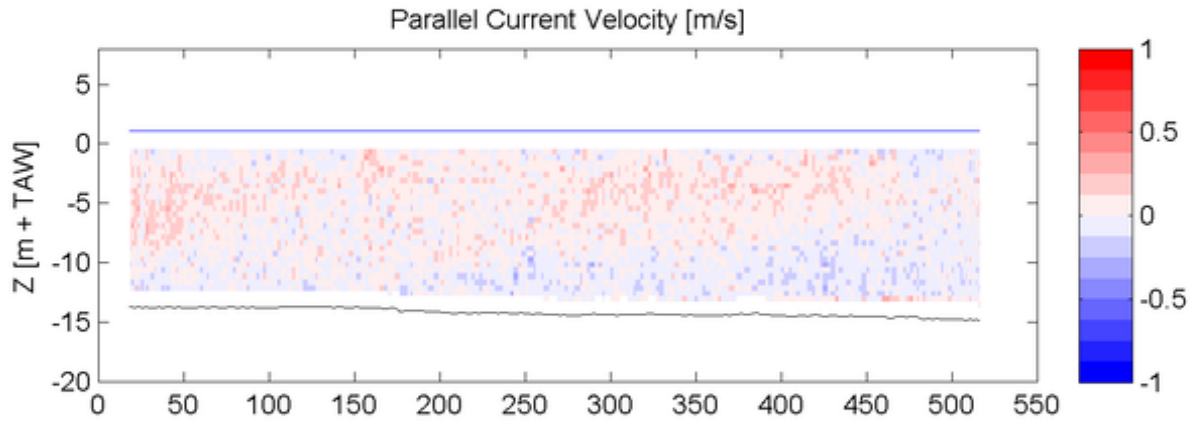
Data Processed by:

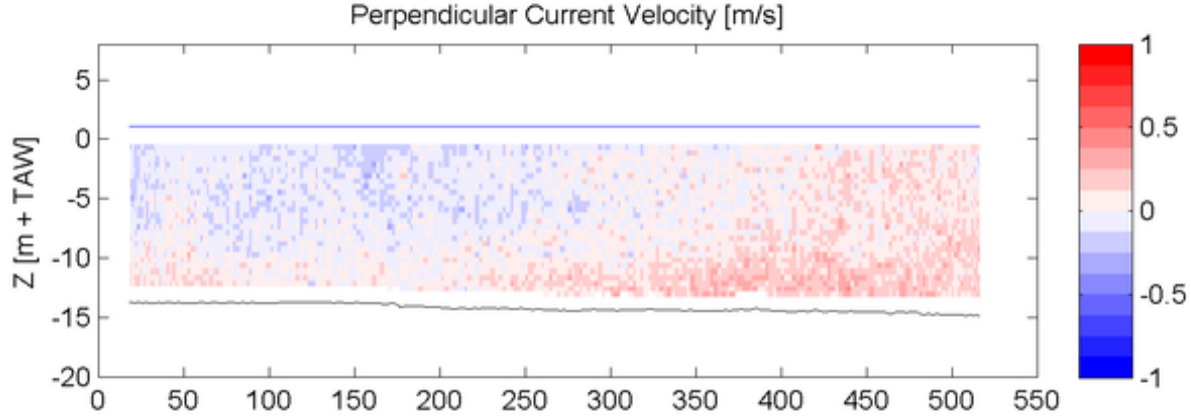
In association with :

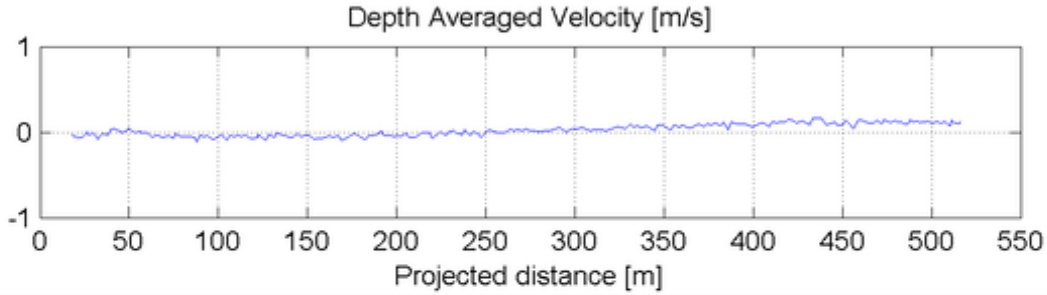
I/RA/11283/08.087/MSA

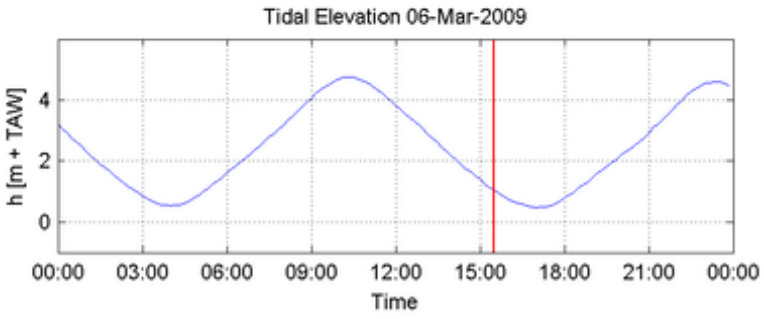
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3110DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:27 - 15:30

Time after HW [HH:MM]
5:08

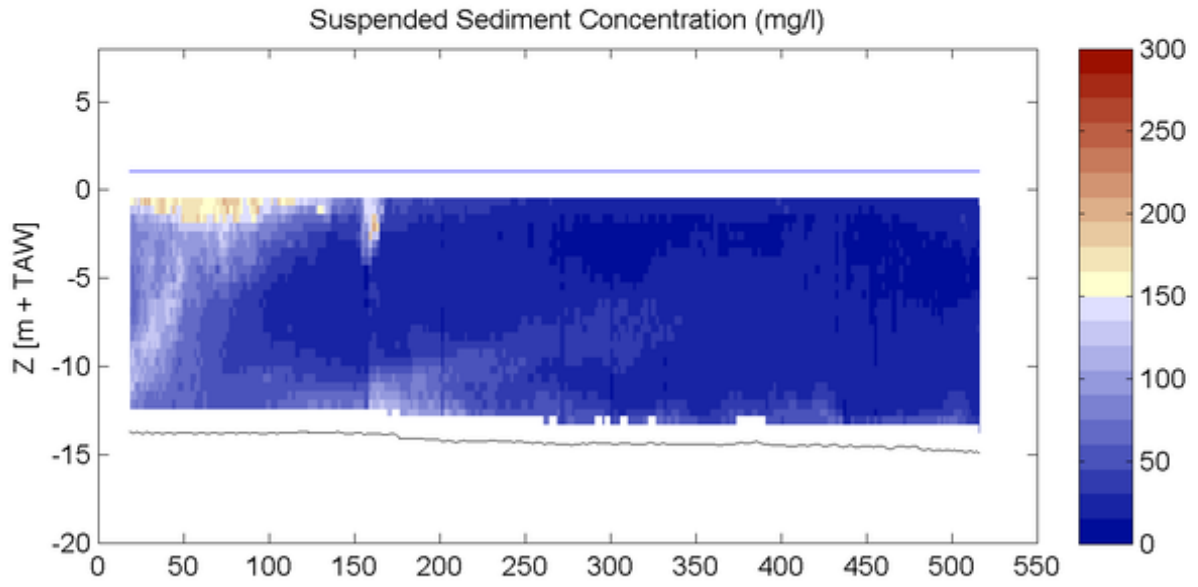
Data Processed by:

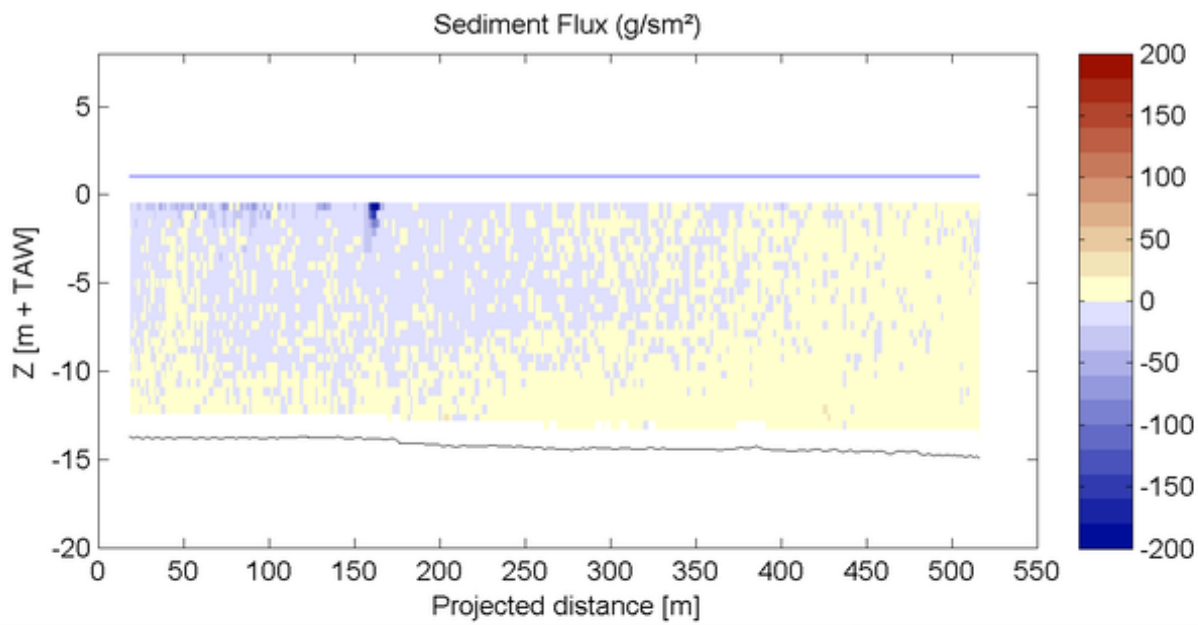
In association with :

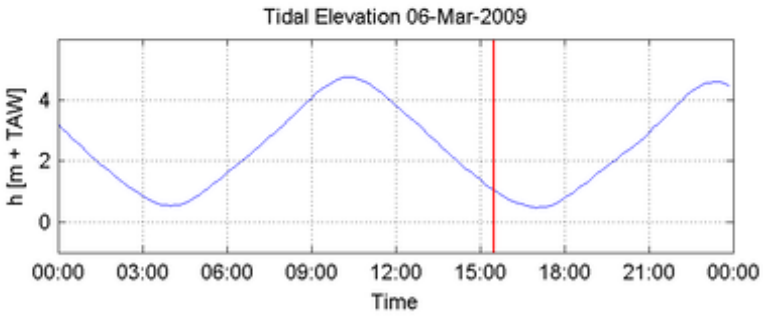
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3110DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:27 - 15:30

Time after HW [HH:MM]
5:08

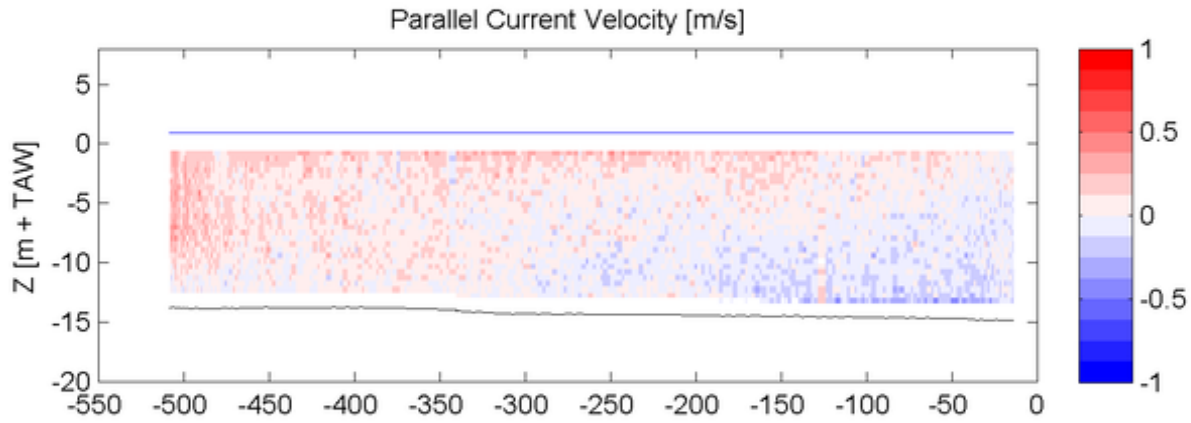
Data Processed by:

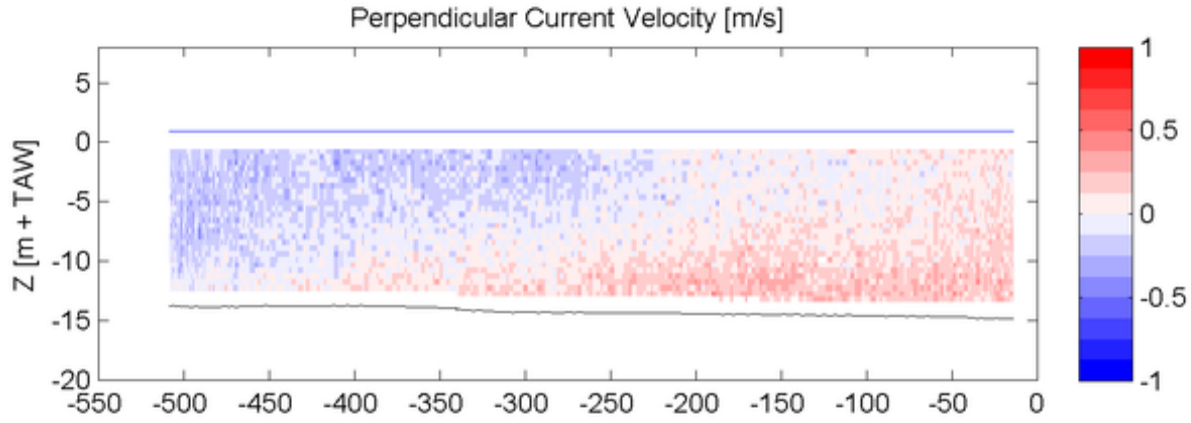
In association with :

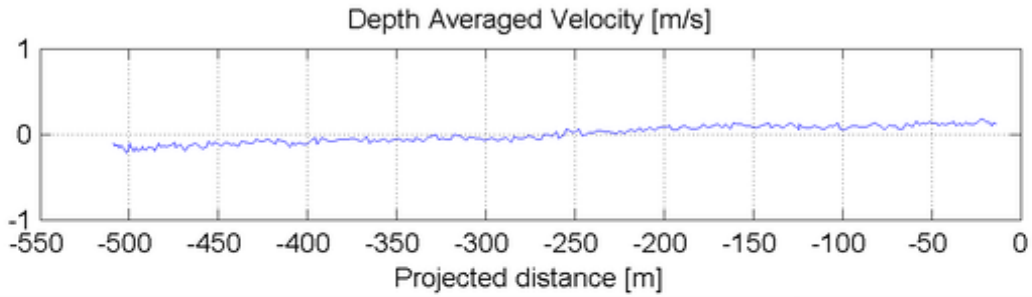
I/RA/11283/08.087/MSA

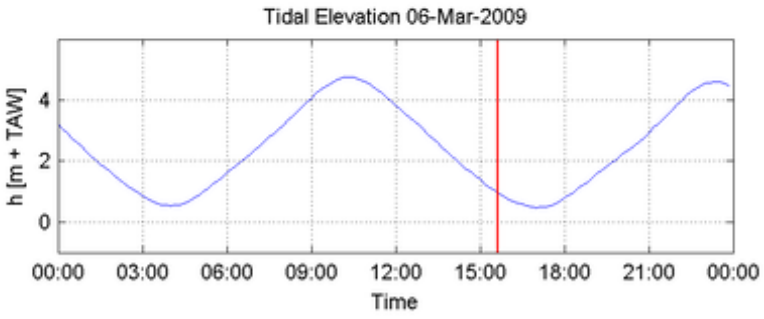
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3112DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:35 - 15:39

Time after HW [HH:MM]
5:17

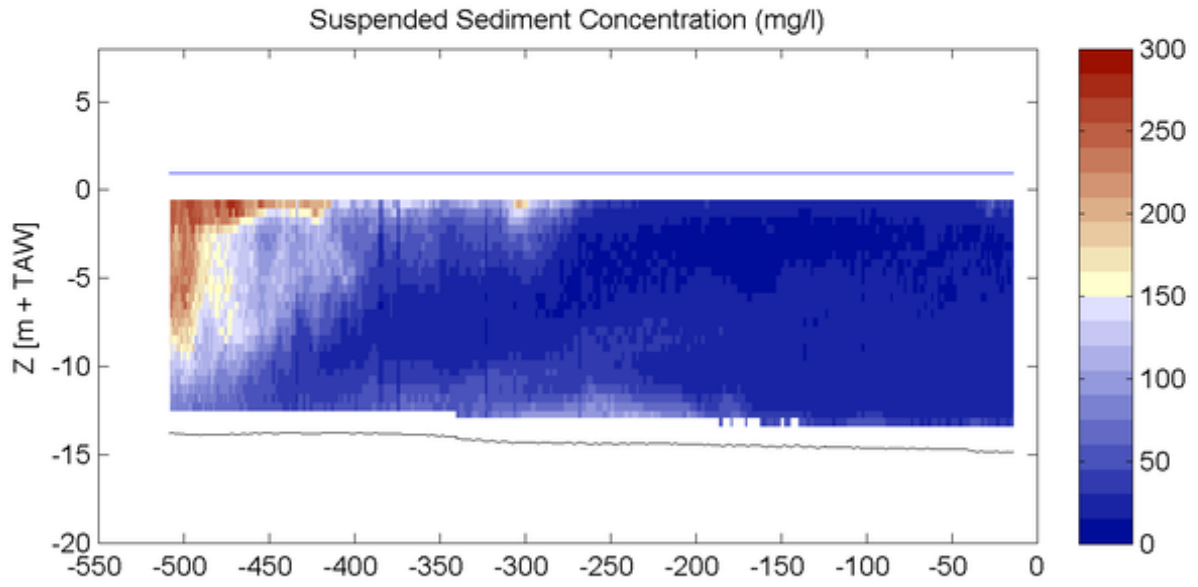
Data Processed by:

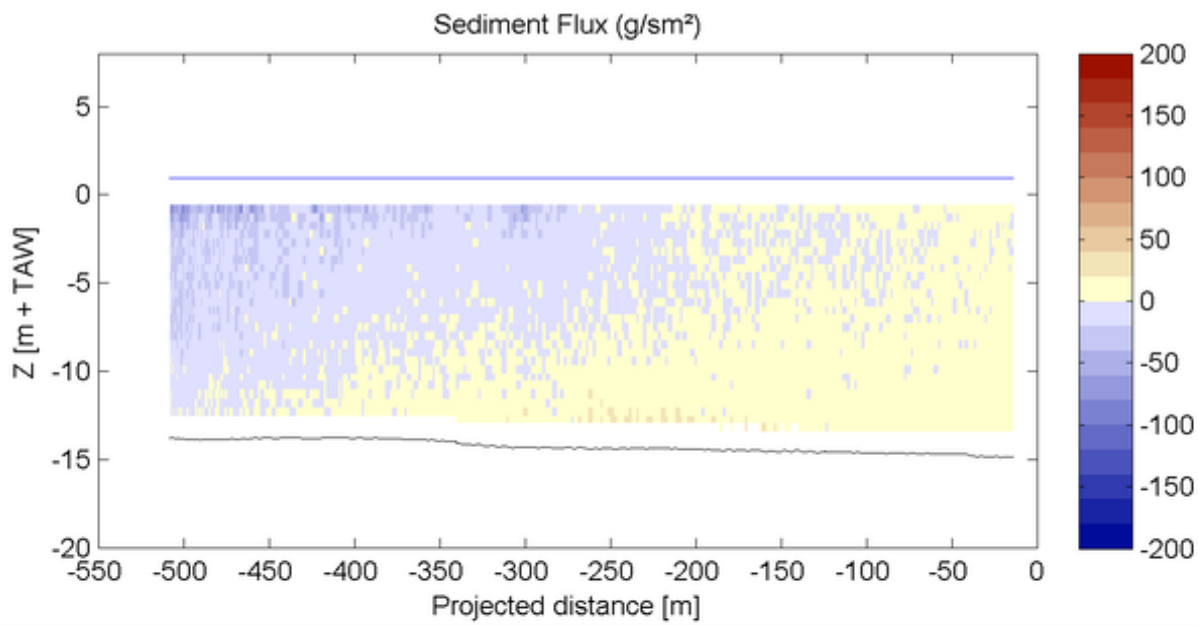
In association with :

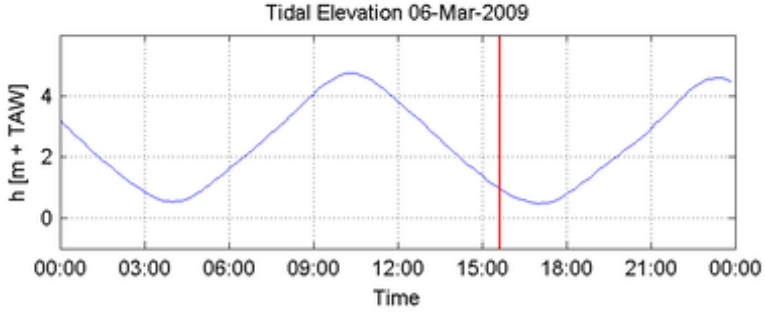
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3112DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:35 - 15:39

Time after HW [HH:MM]
5:17

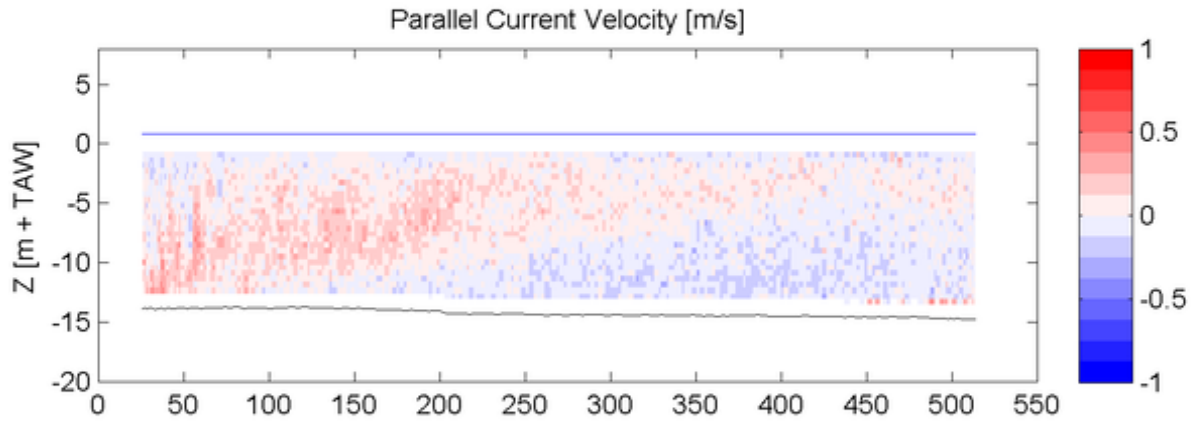
Data Processed by:

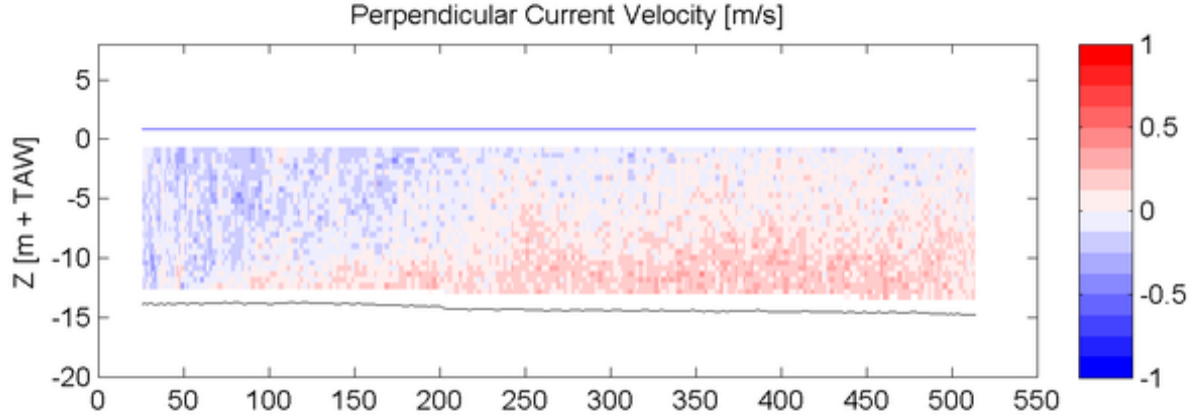
In association with :

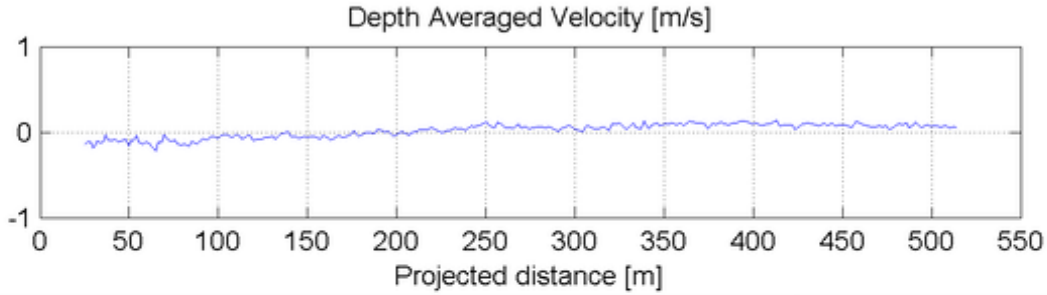
I/RA/11283/08.087/MSA

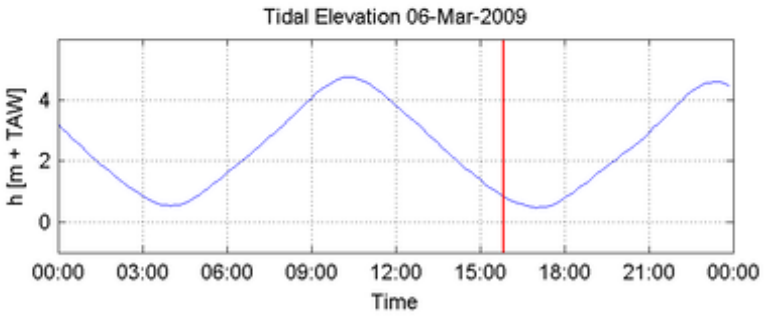
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3114DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:47 - 15:50

Time after HW [HH:MM]
5:29

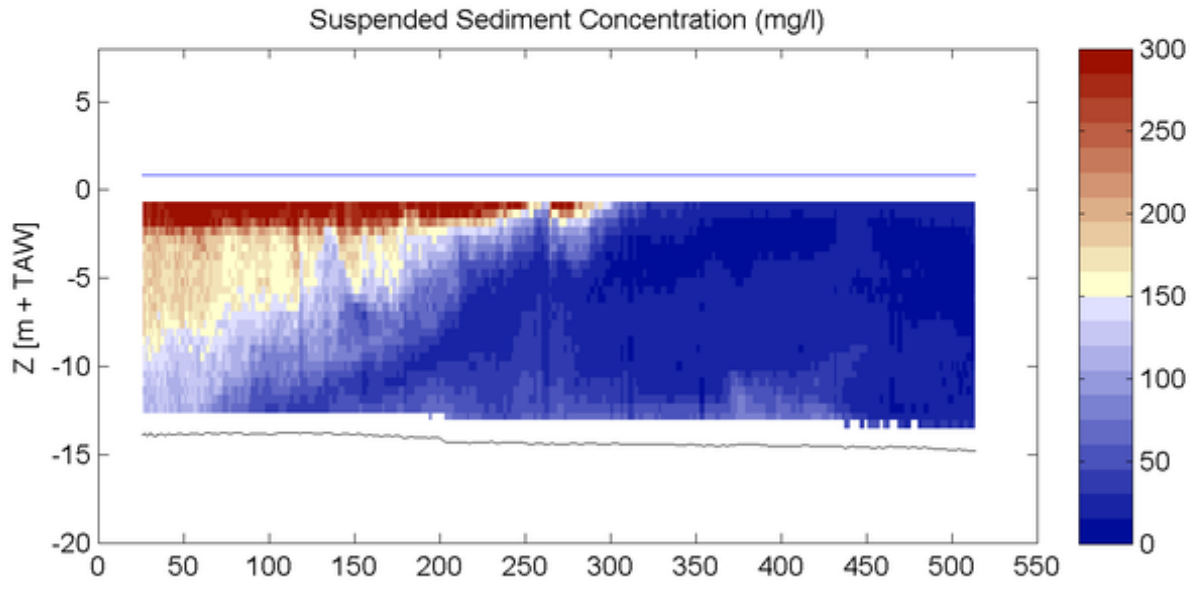
Data Processed by:

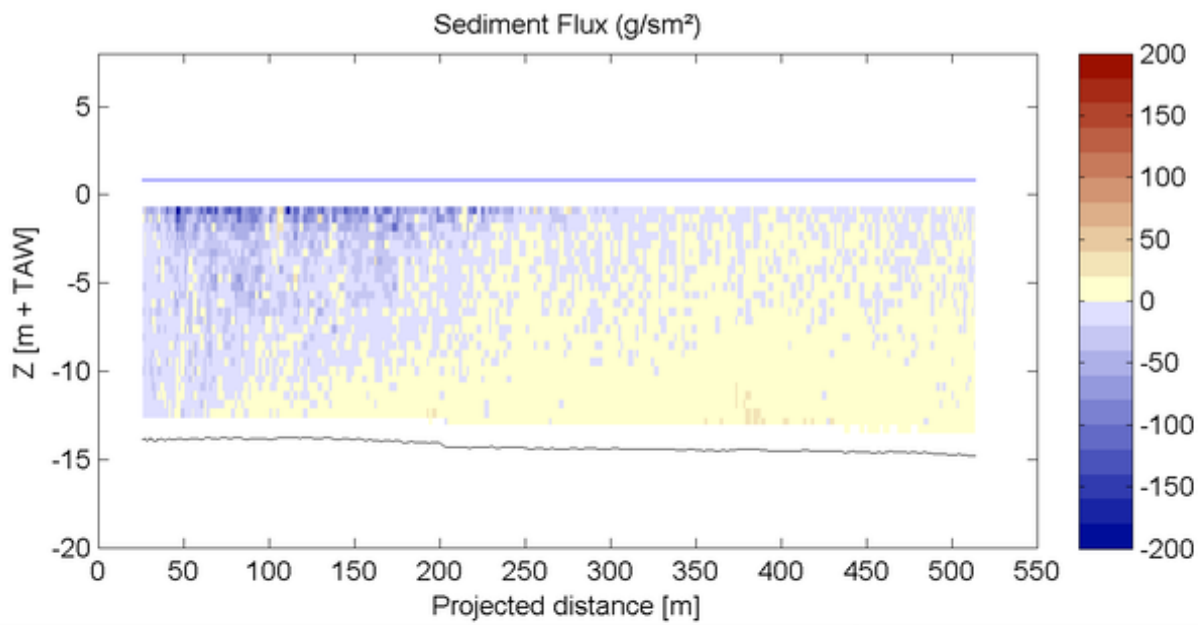
In association with :

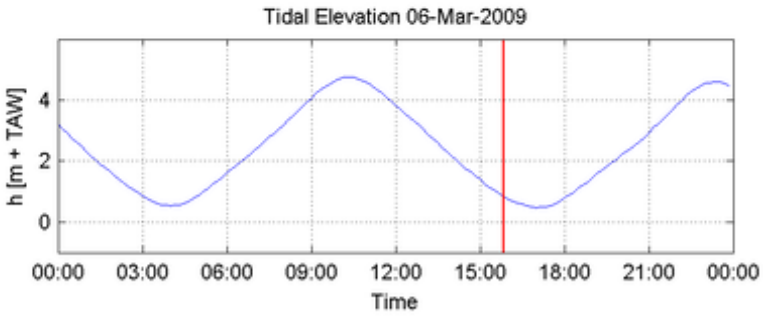
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3114DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:47 - 15:50

Time after HW [HH:MM]
5:29

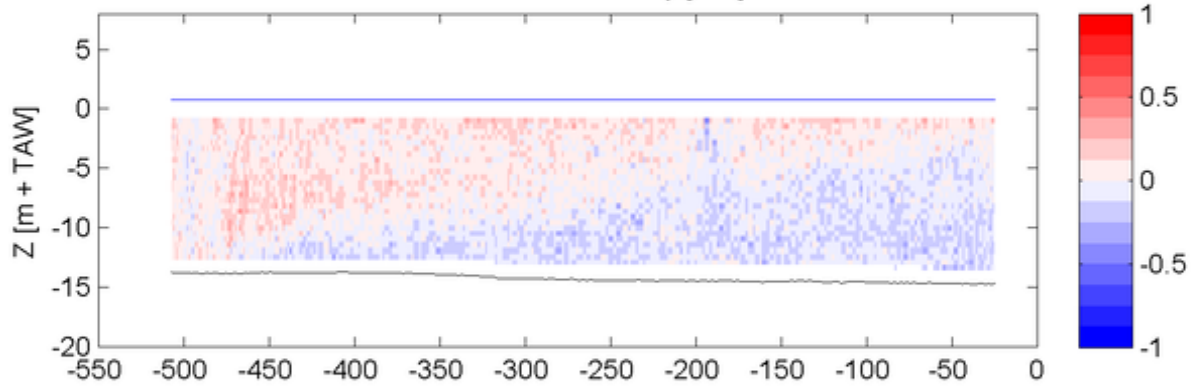
Data Processed by:

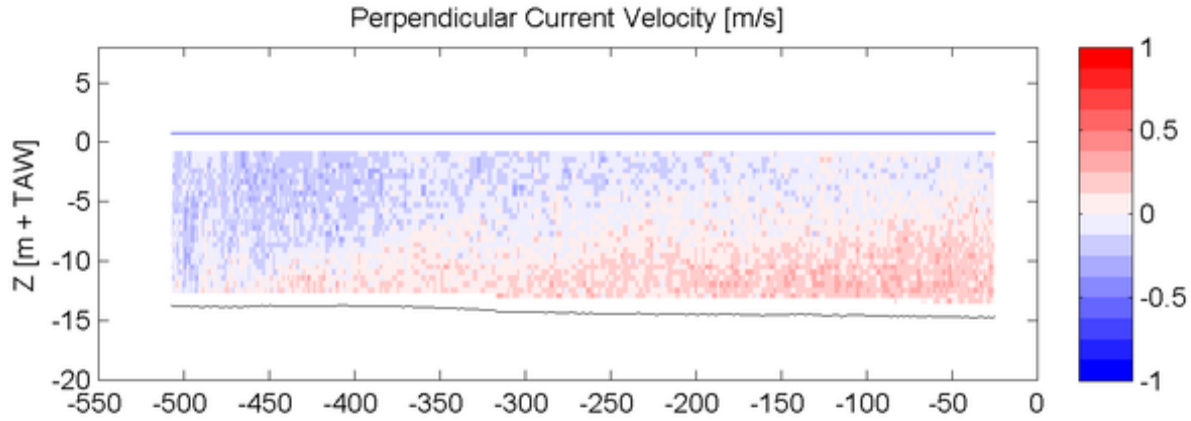
In association with :

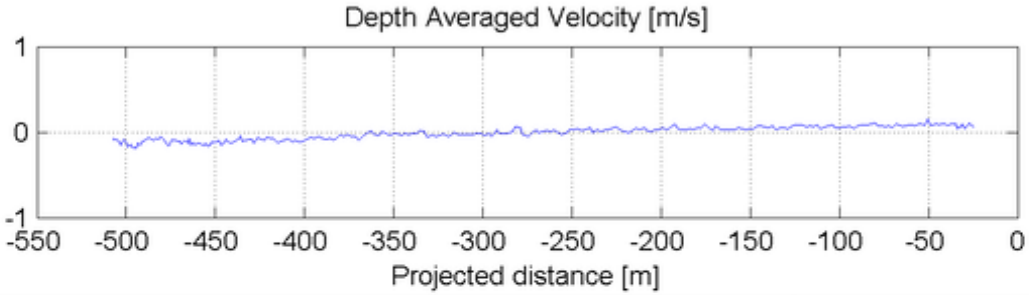
I/RA/11283/08.087/MSA

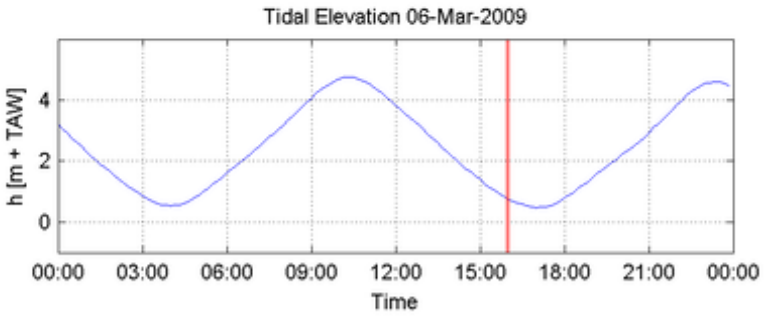
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3116DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:56 - 16:00

Time after HW [HH:MM]
5:38

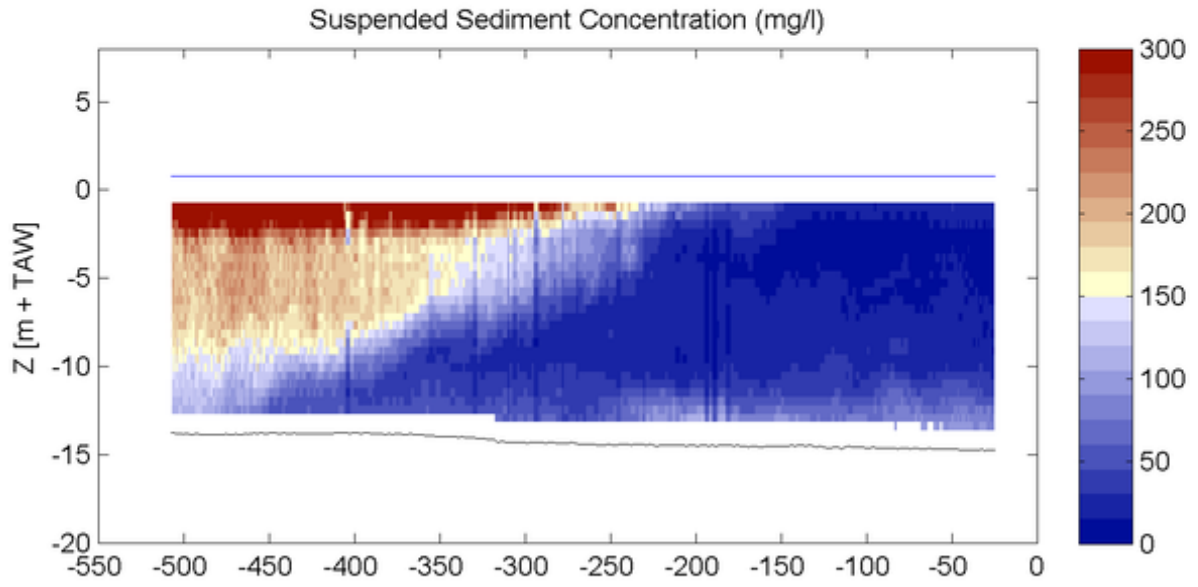
Data Processed by:

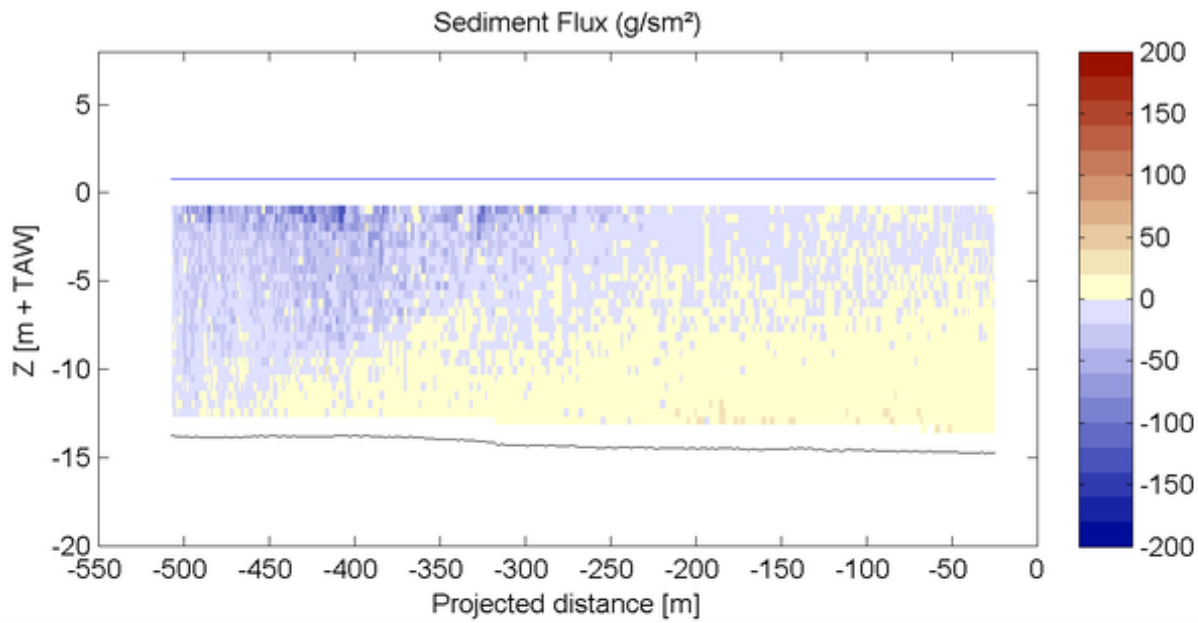
In association with :

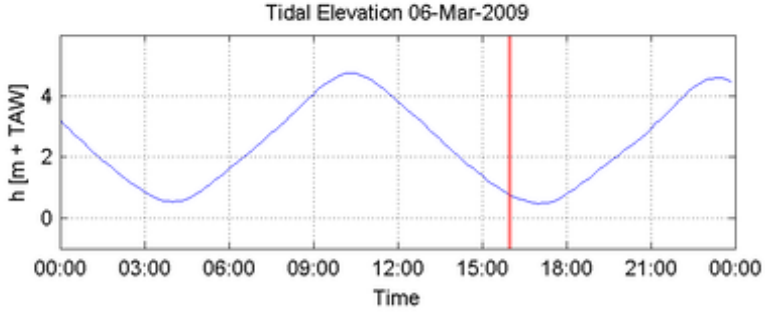
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3116DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
15:56 - 16:00

Time after HW [HH:MM]
5:38

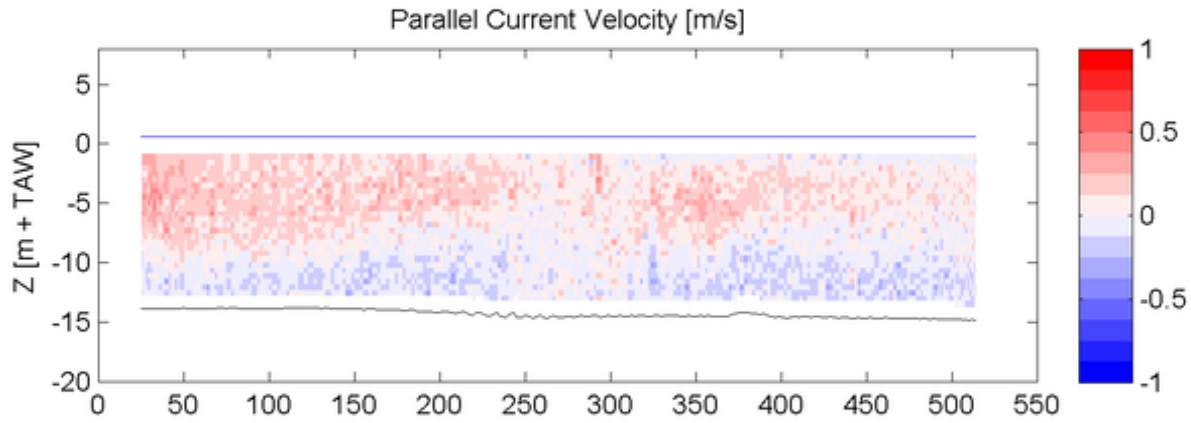
Data Processed by:

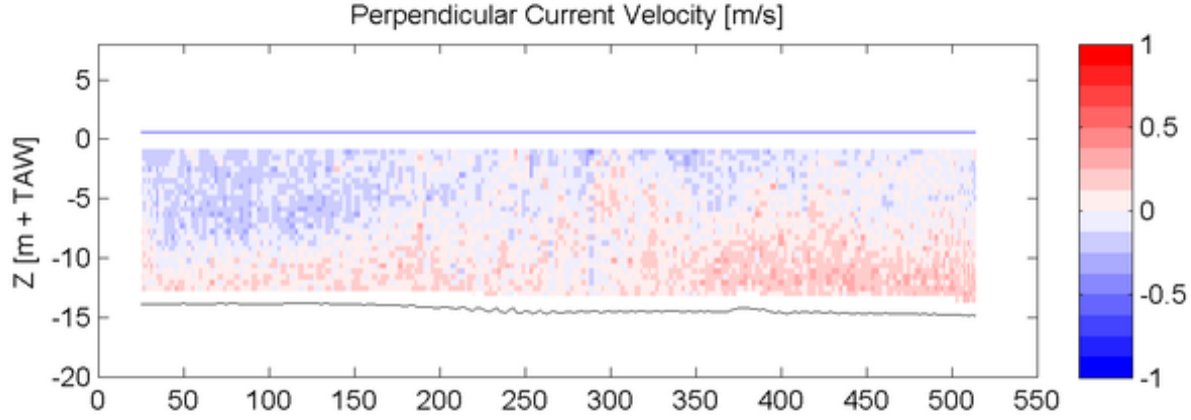
In association with :

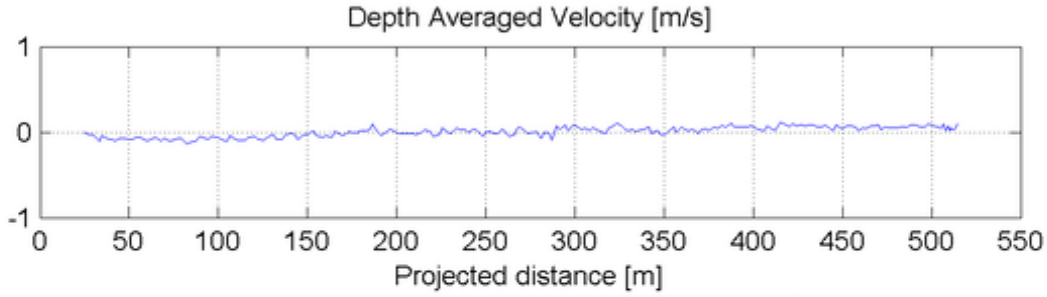
I/RA/11283/08.087/MSA

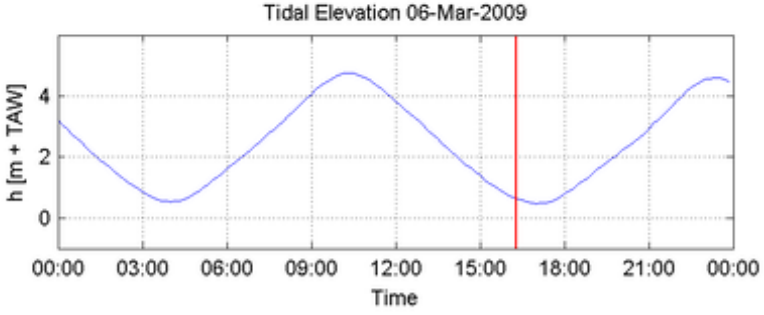
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3118DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
16:15 - 16:17

Time after HW [HH:MM]
5:56

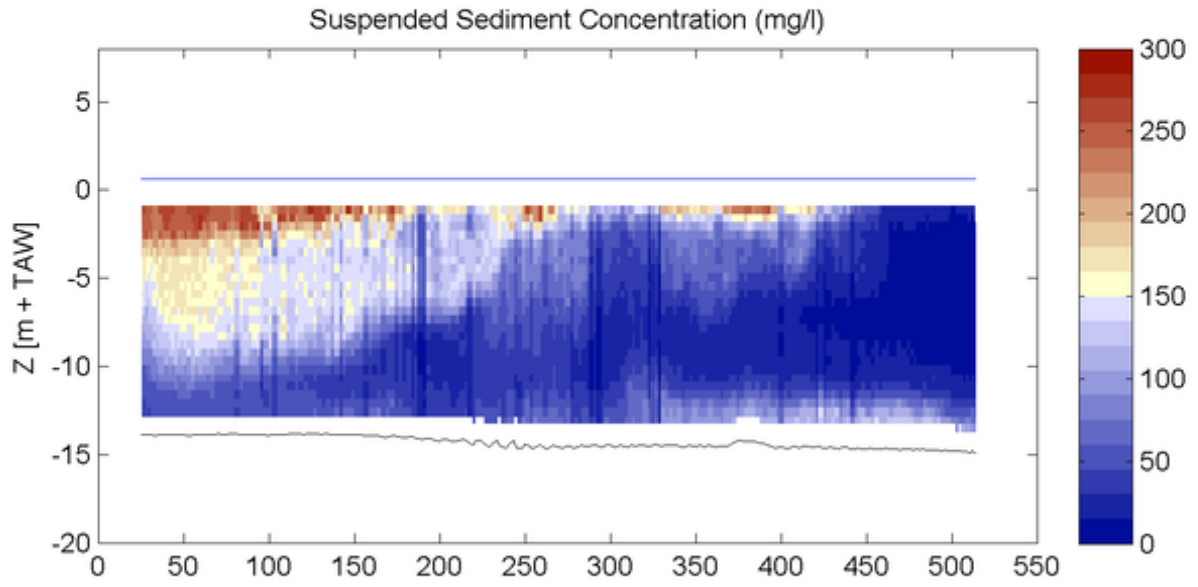
Data Processed by:

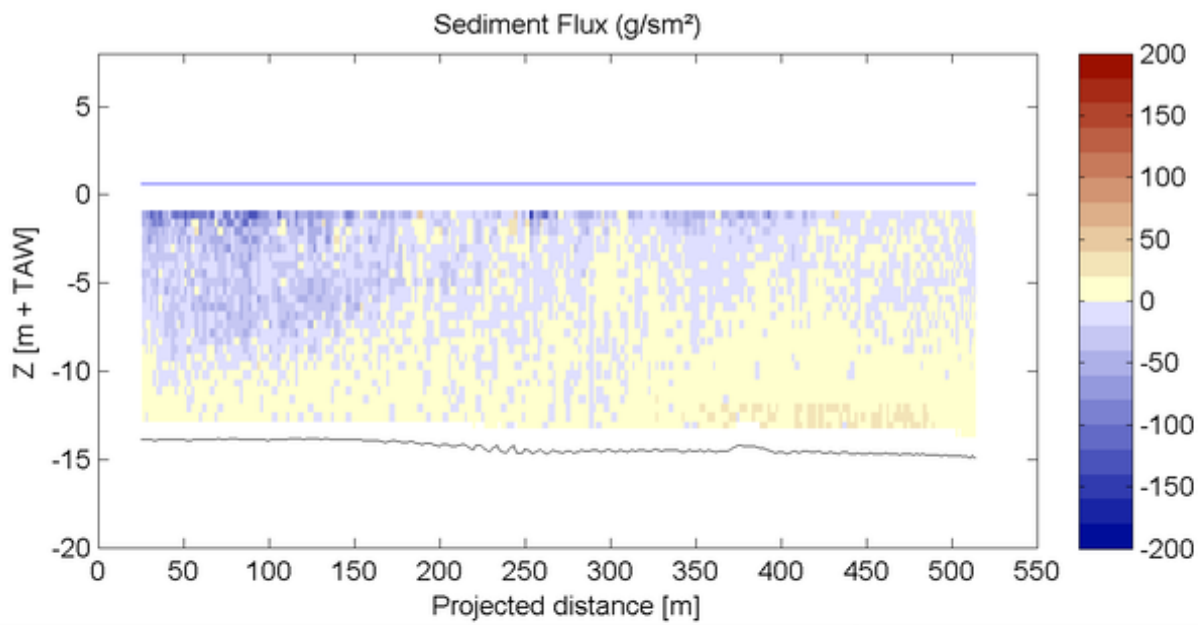
In association with :

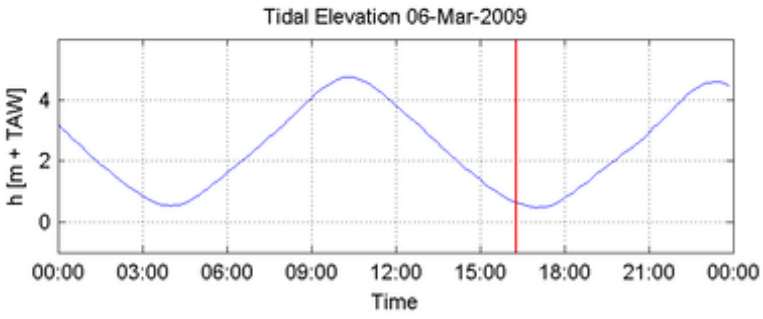
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3118DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
16:15 - 16:17

Time after HW [HH:MM]
5:56

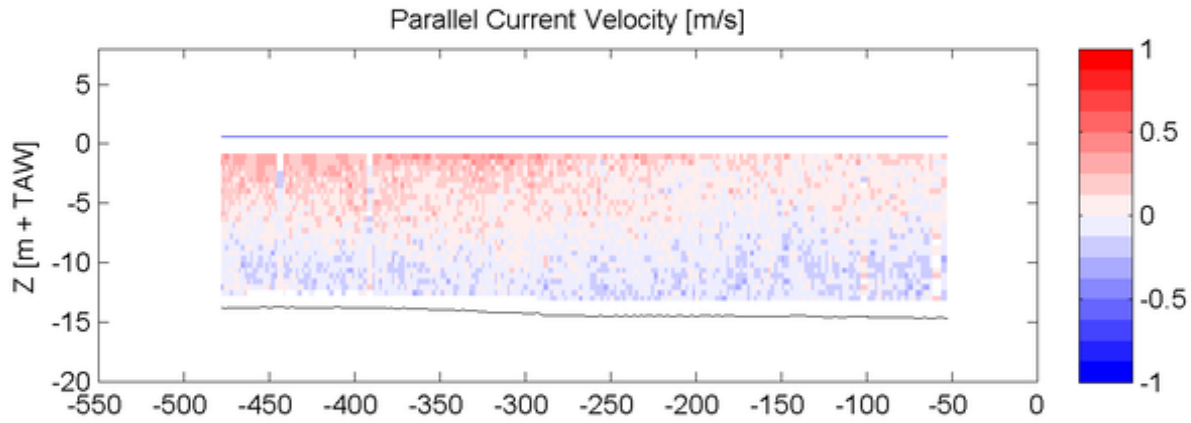
Data Processed by:

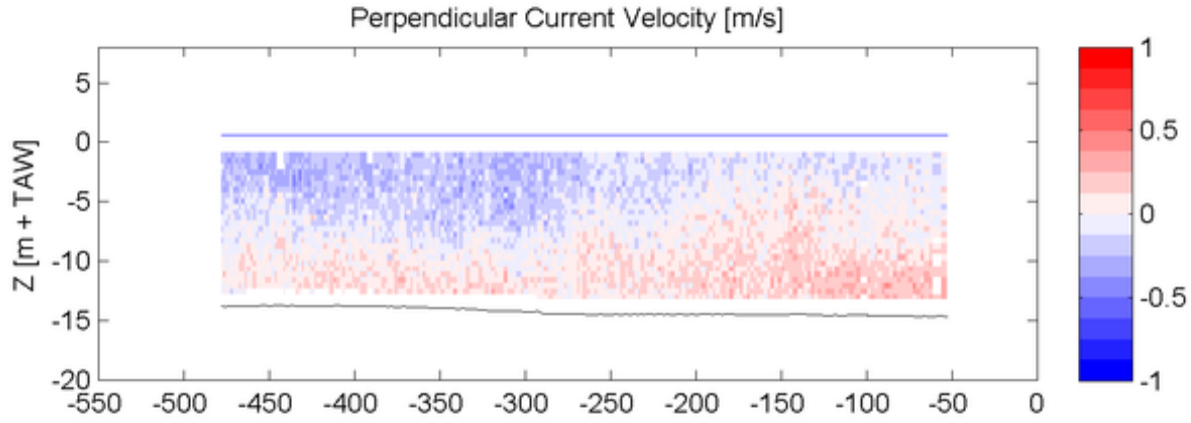
In association with :

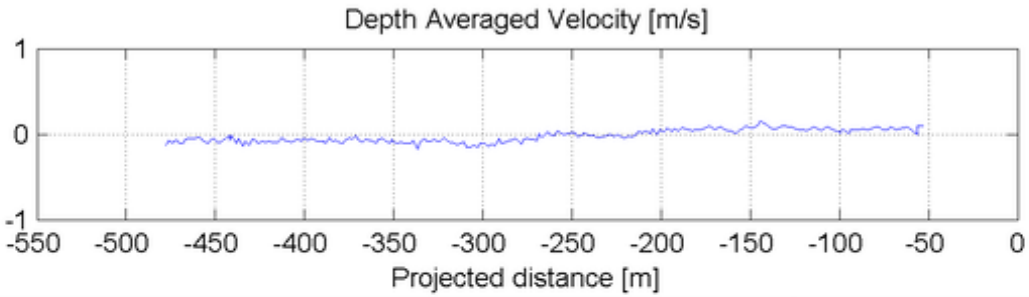
I/RA/11283/08.087/MSA

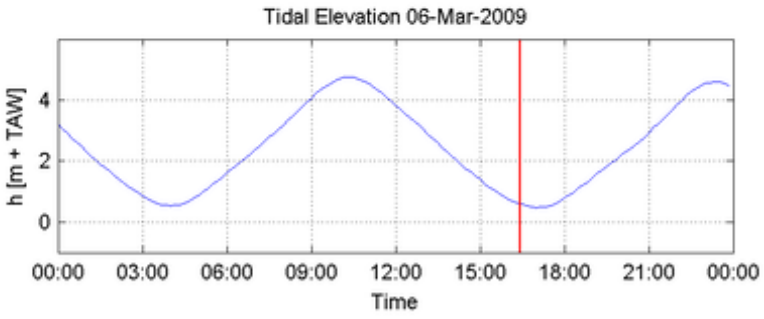
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3120DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
16:24 - 16:26

Time after HW [HH:MM]
6:05

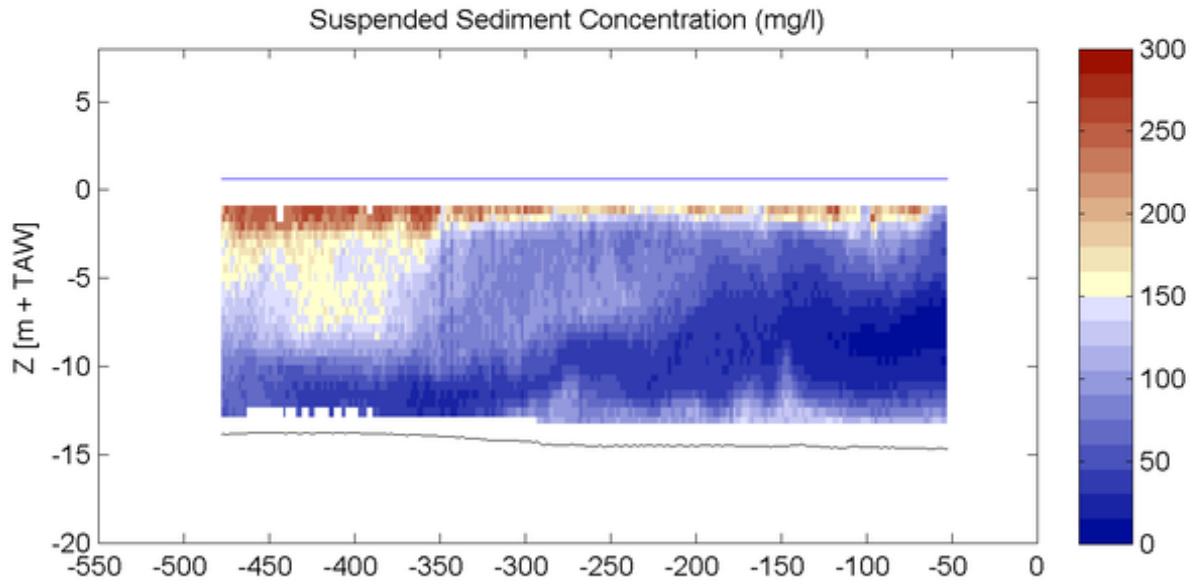
Data Processed by:

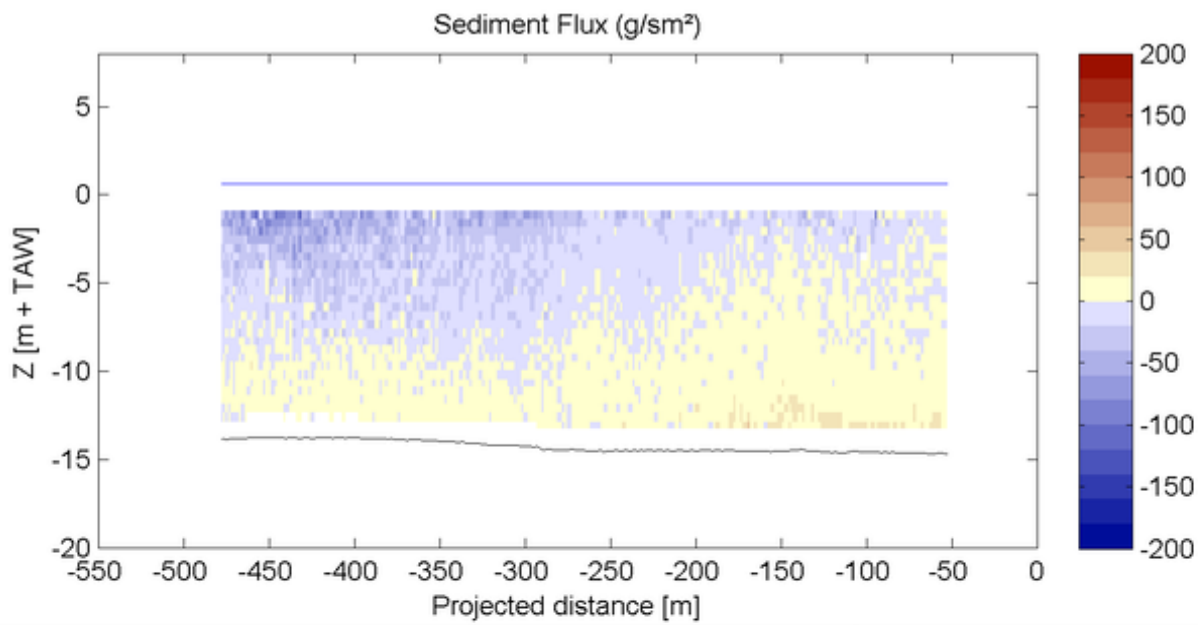
In association with :

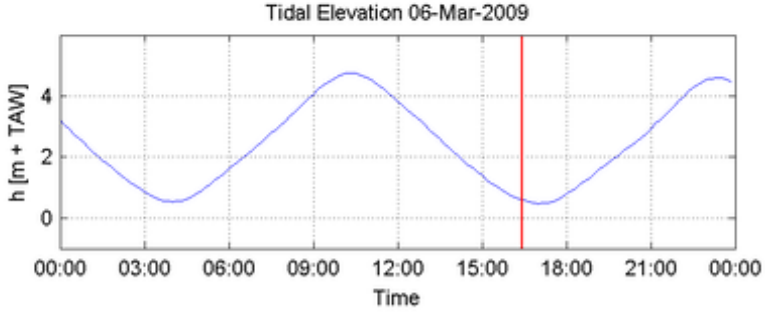
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3120DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
16:24 - 16:26

Time after HW [HH:MM]
6:05

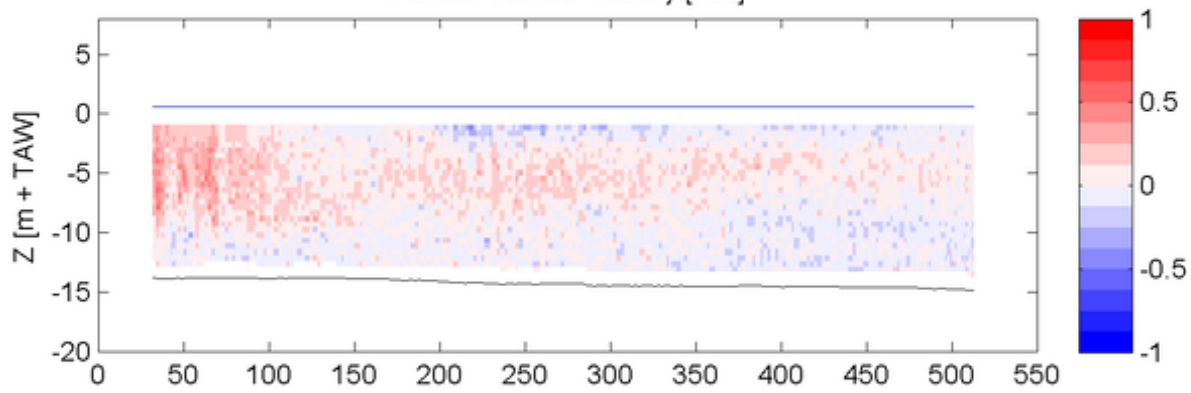
Data Processed by:

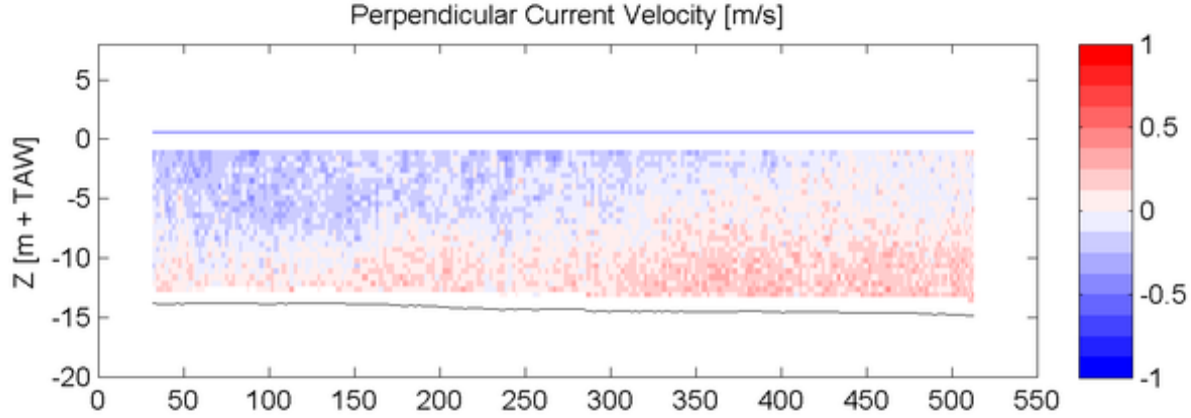
In association with :

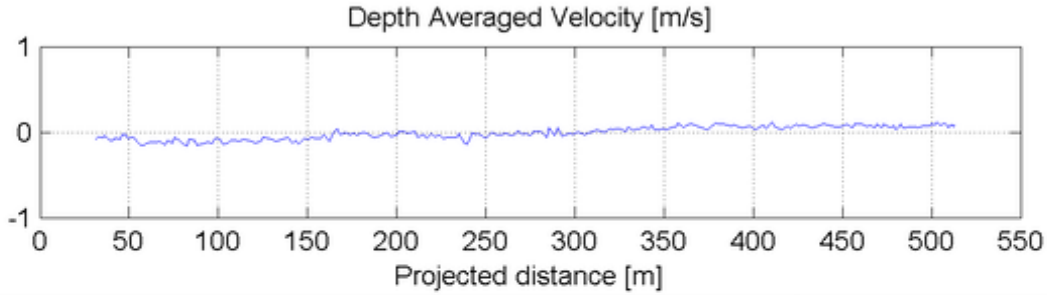
I/RA/11283/08.087/MSA

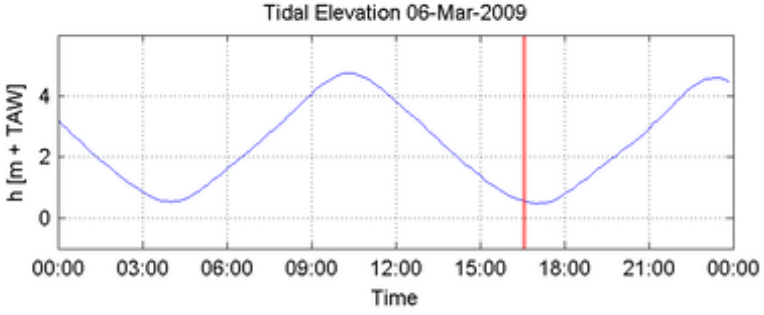
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3122DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
16:33 - 16:35

Time after HW [HH:MM]
6:14

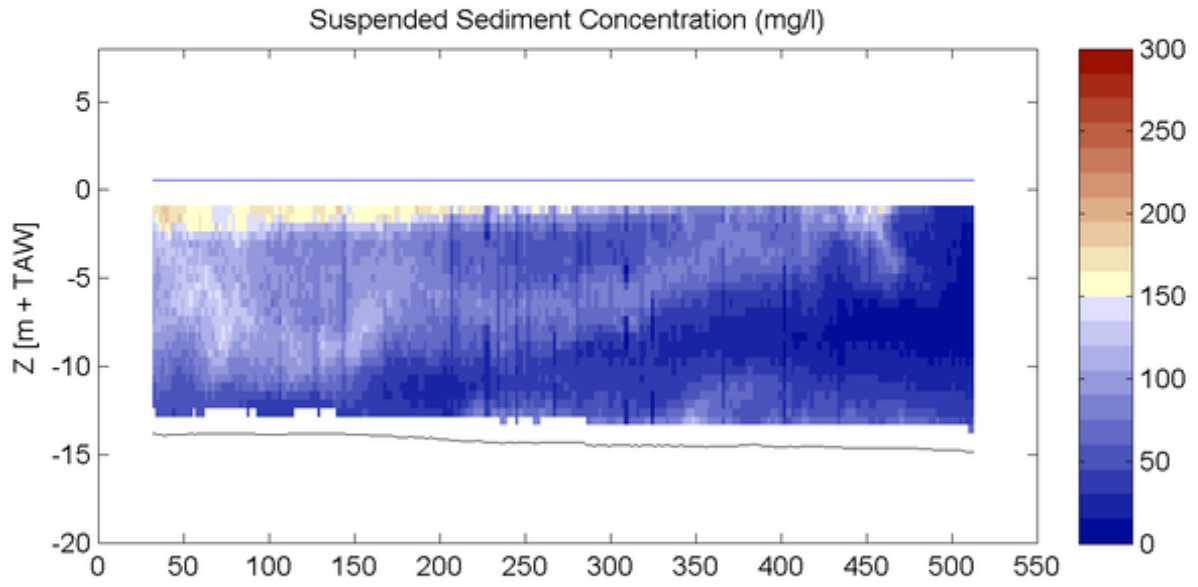
Data Processed by:

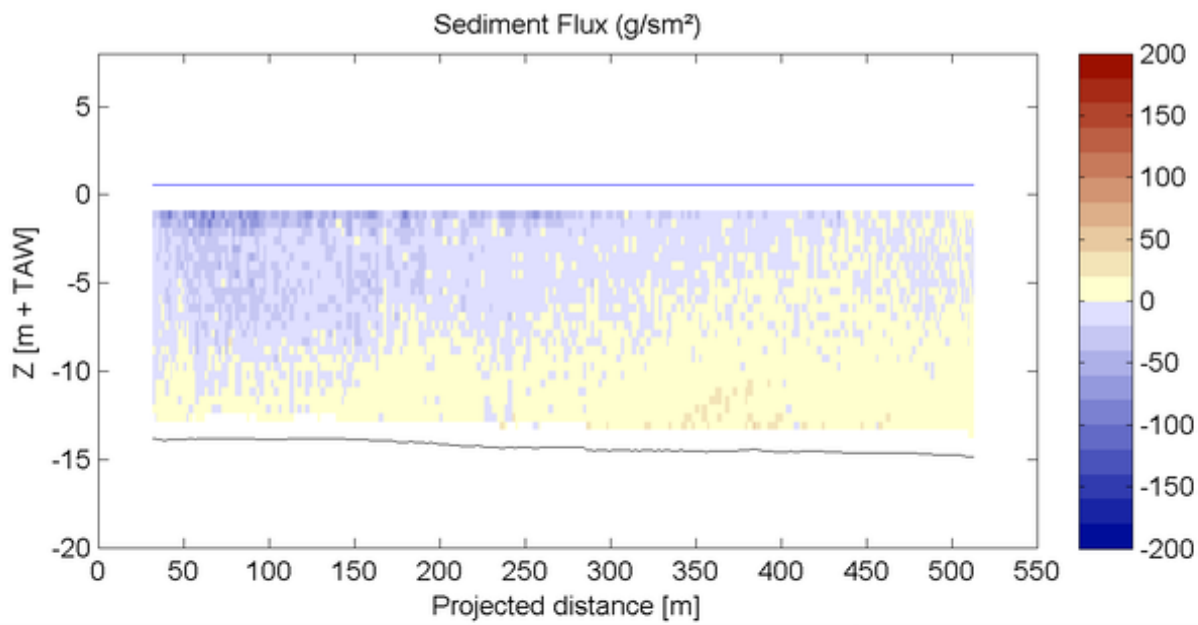
In association with :

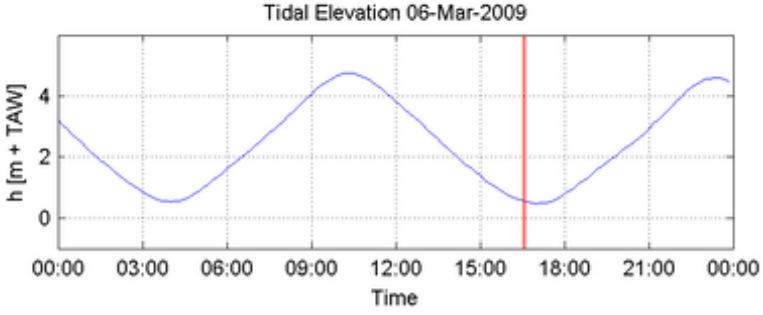
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3122DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

16:33 - 16:35

Time after HW [HH:MM]

6:14

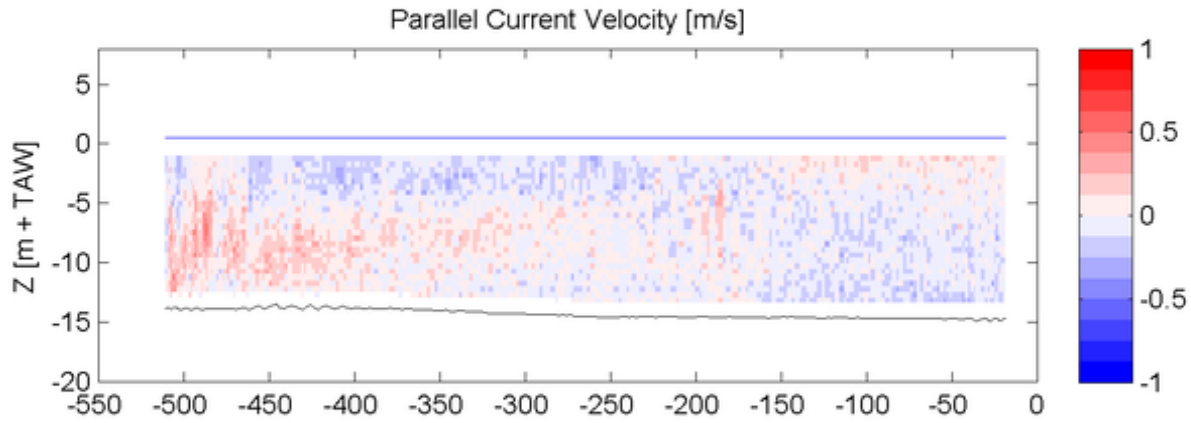
Data Processed by:

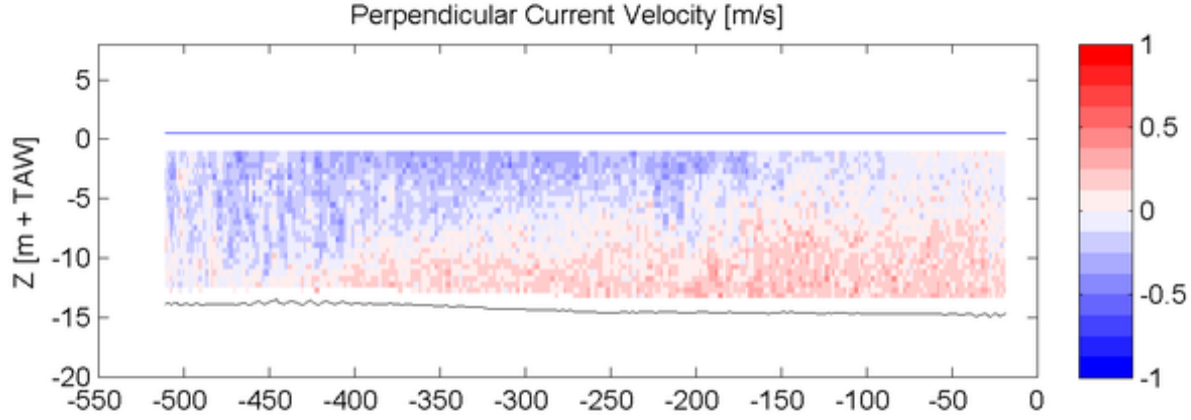
In association with :

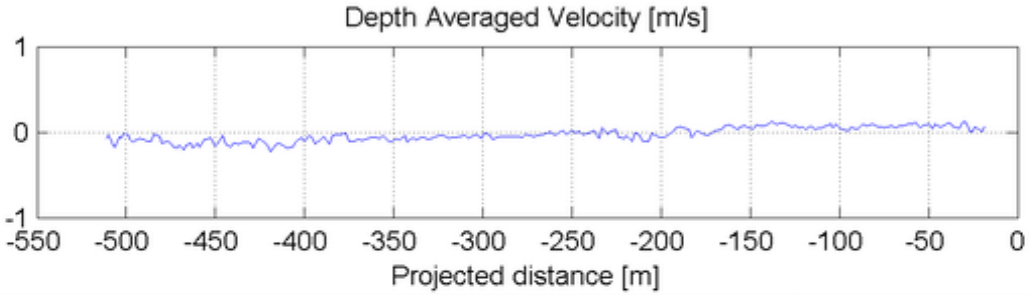
I/RA/11283/08.087/MSA

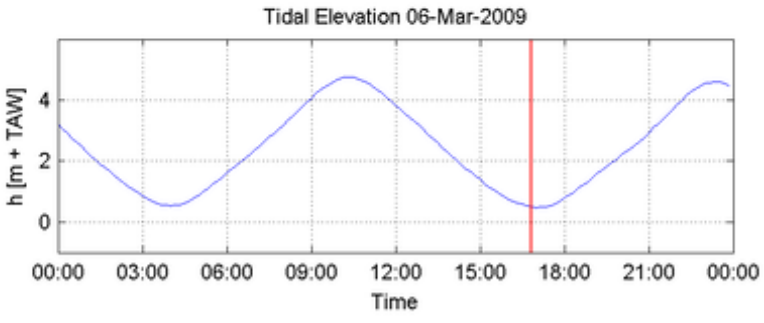
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3124DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
16:47 - 16:50

Time after HW [HH:MM]
6:28

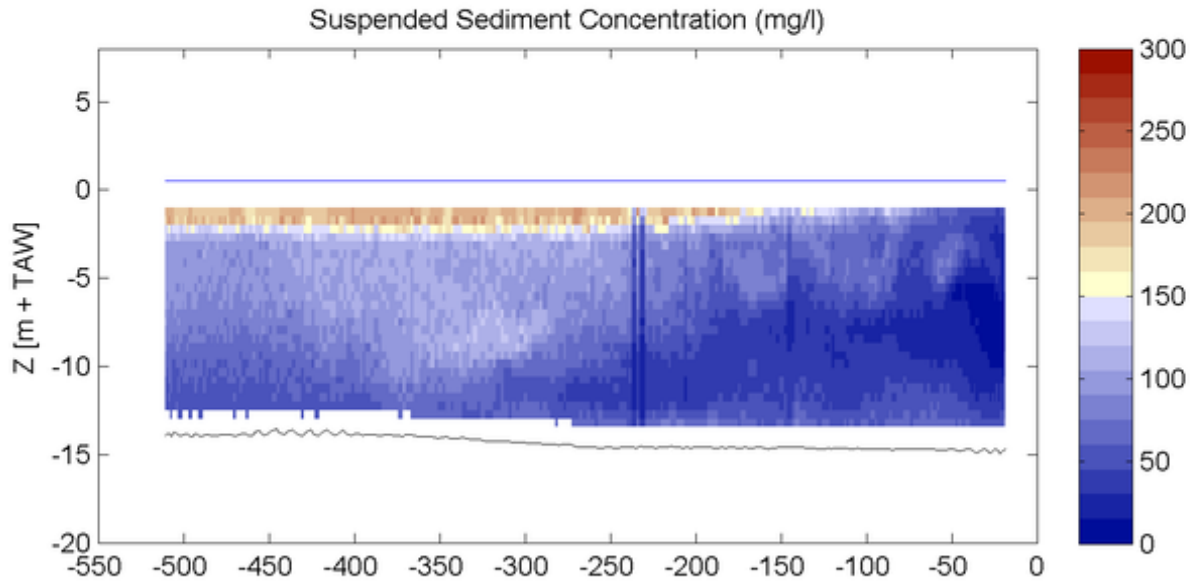
Data Processed by:

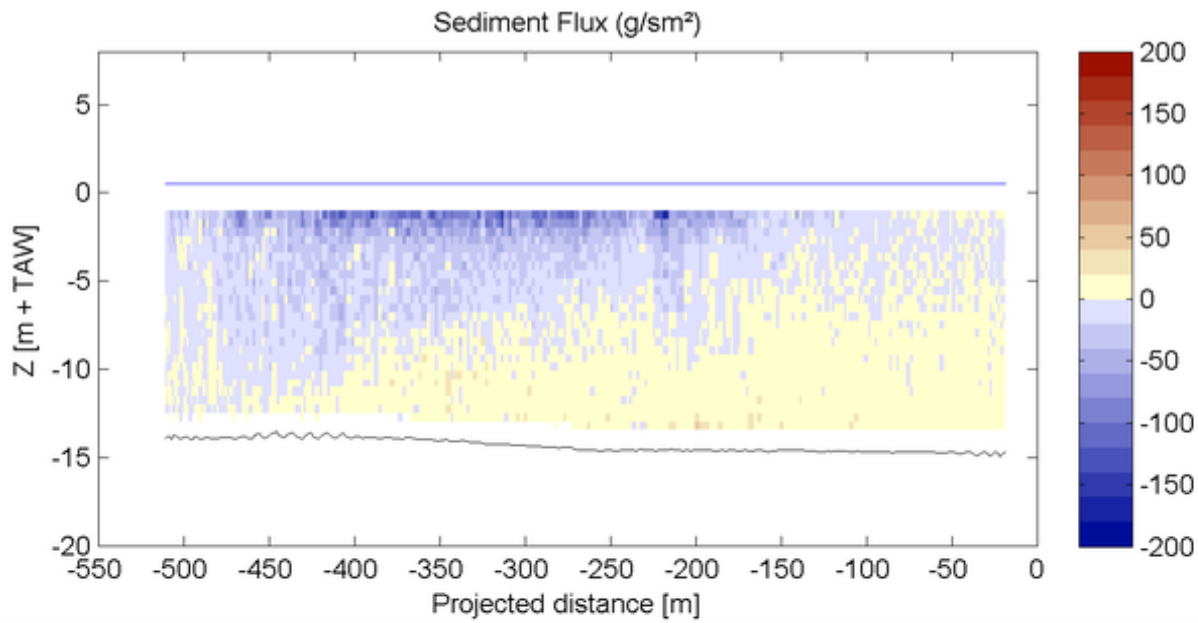
In association with :

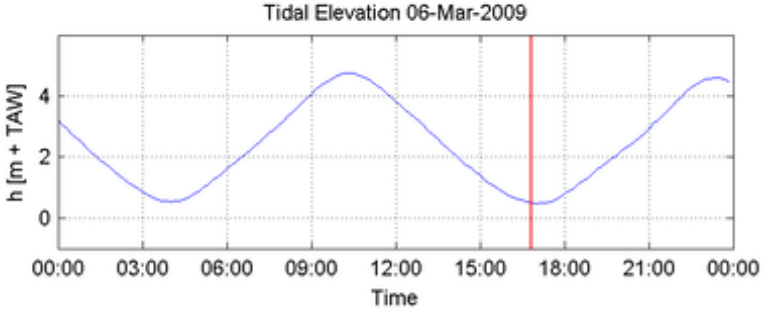
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3124DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

16:47 - 16:50

Time after HW [HH:MM]

6:28

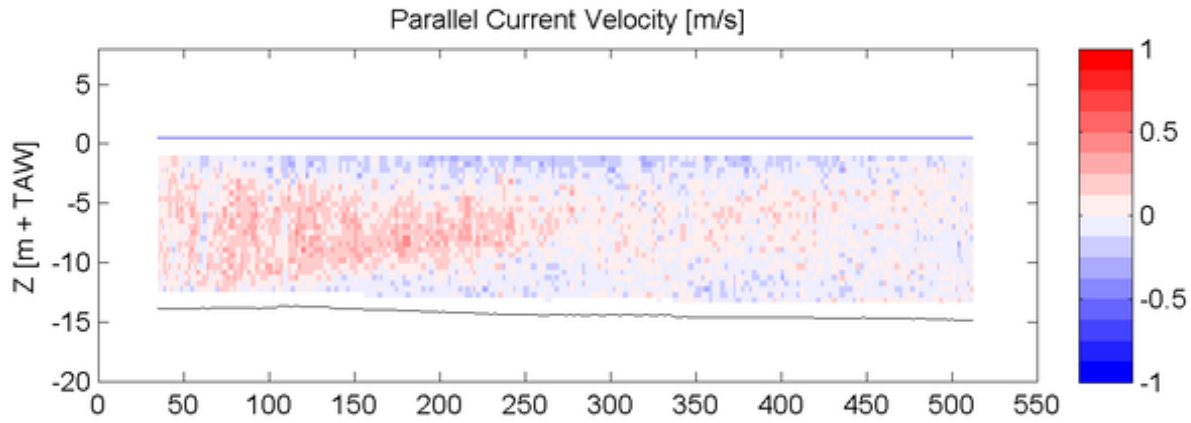
Data Processed by:

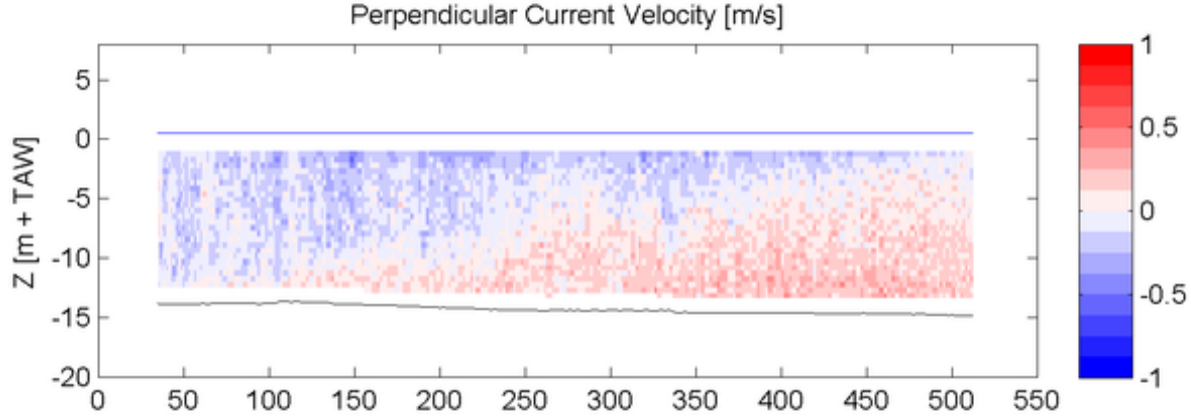
In association with :

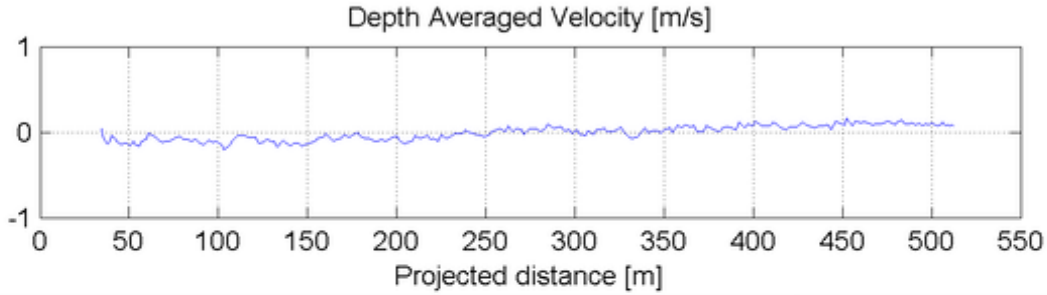
I/RA/11283/08.087/MSA

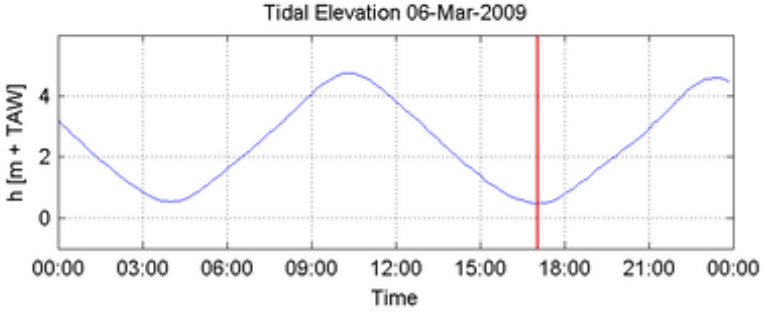
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3126DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
17:00 - 17:03

Time after HW [HH:MM]
-6:18

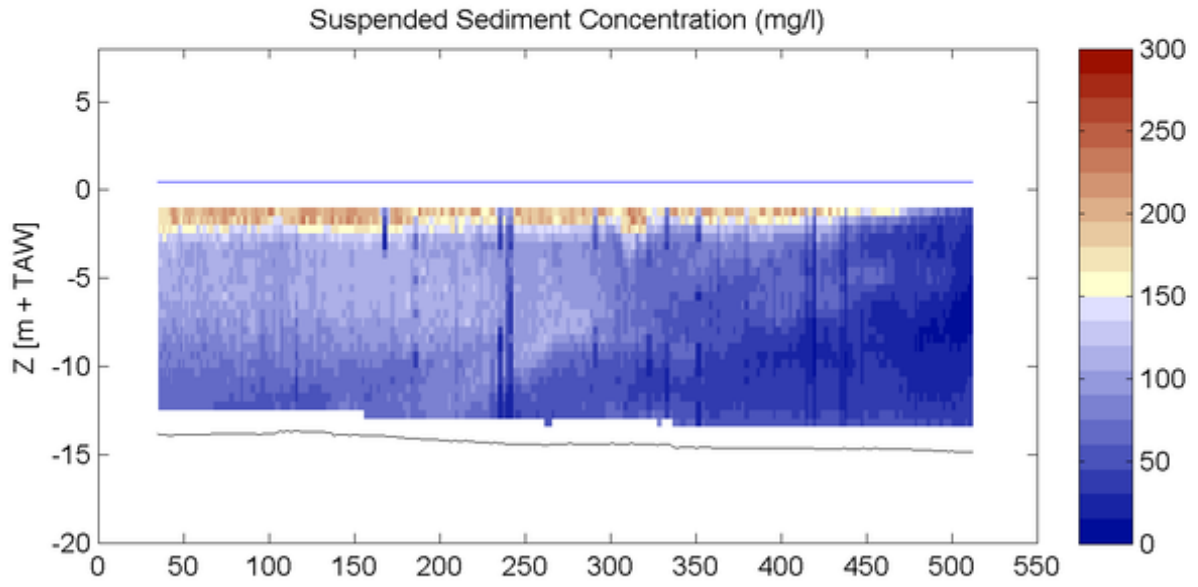
Data Processed by:

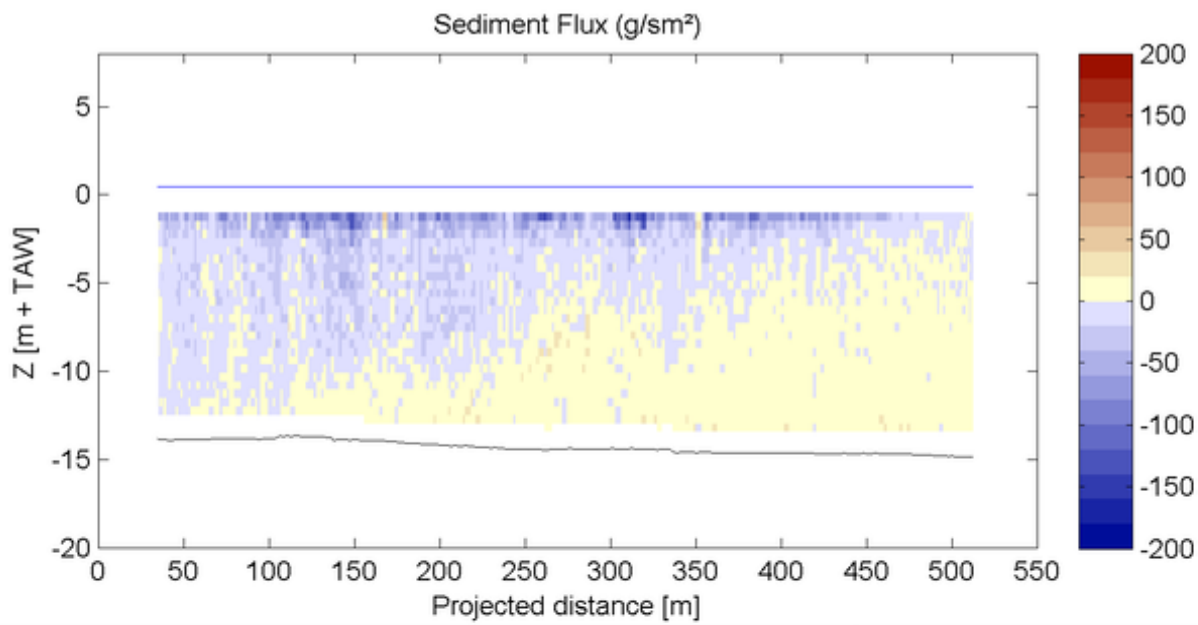
In association with :

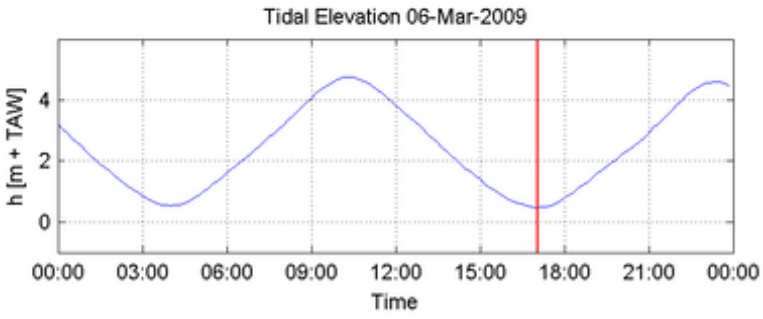
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3126DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

17:00 - 17:03

Time after HW [HH:MM]

-6:18

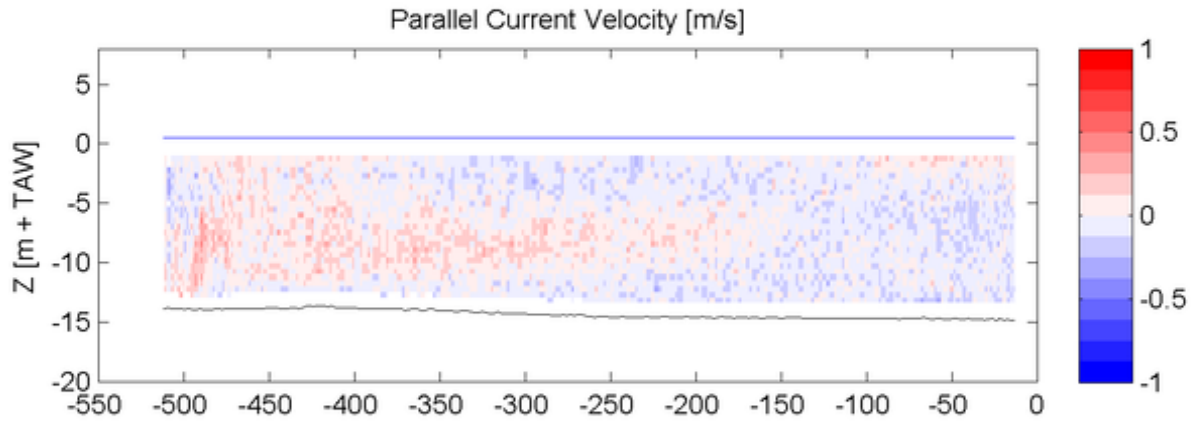
Data Processed by:

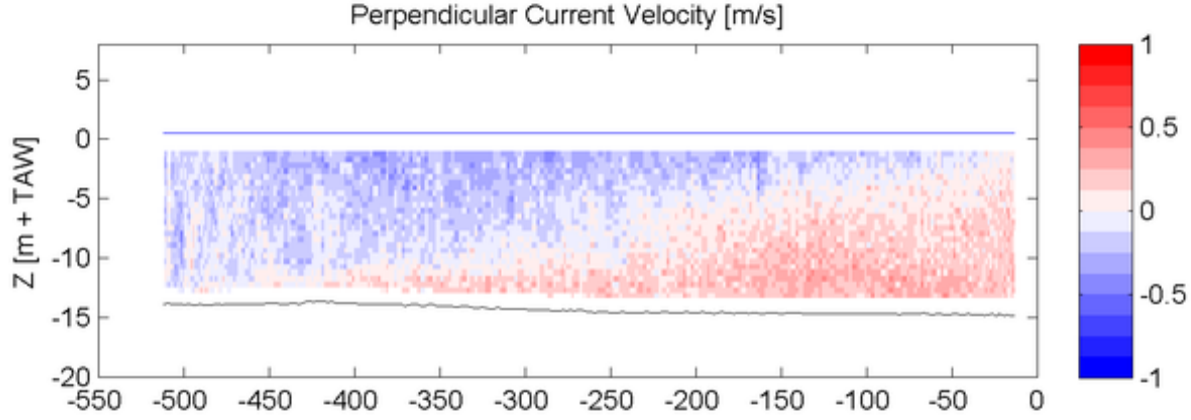
In association with :

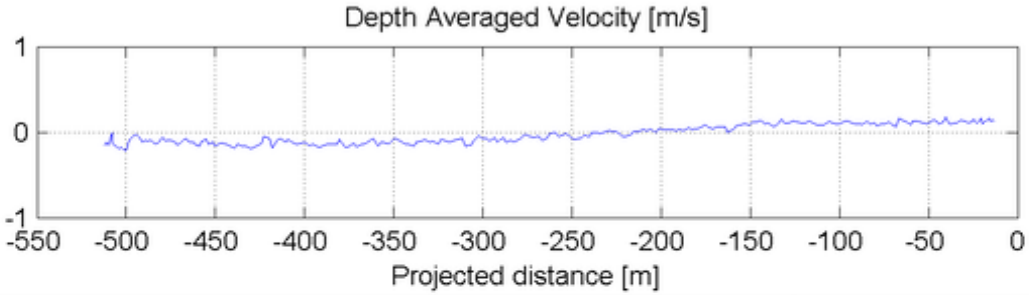
I/RA/11283/08.087/MSA

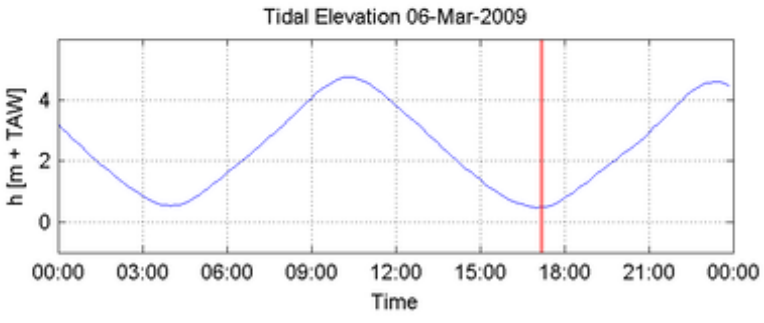
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3128DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
17:09 - 17:13

Time after HW [HH:MM]
-6:08

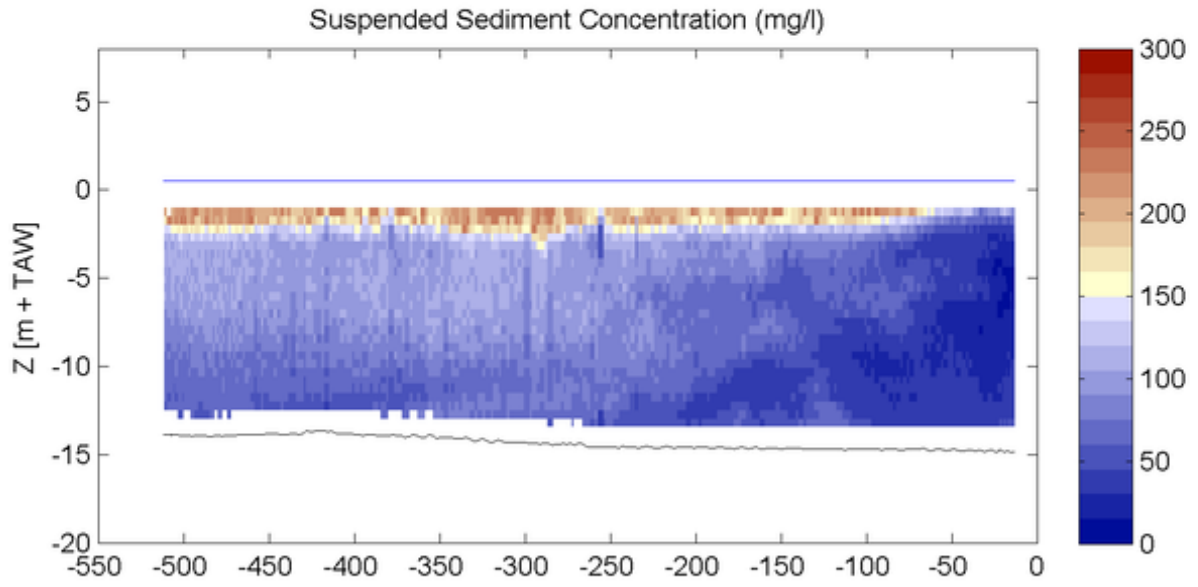
Data Processed by:

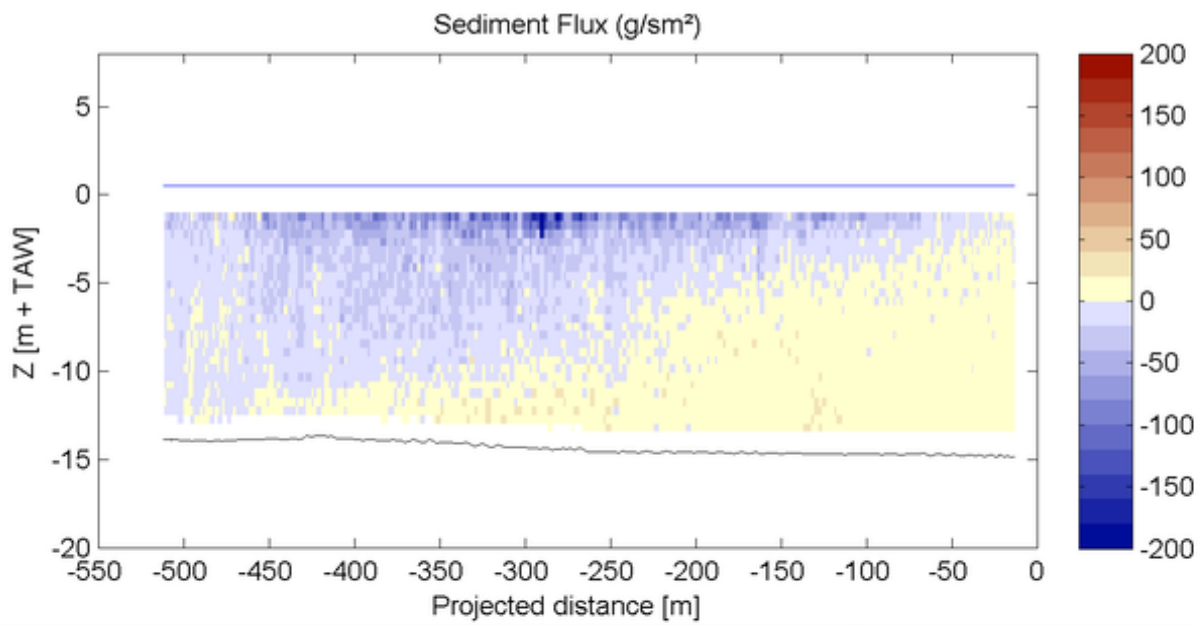
In association with :

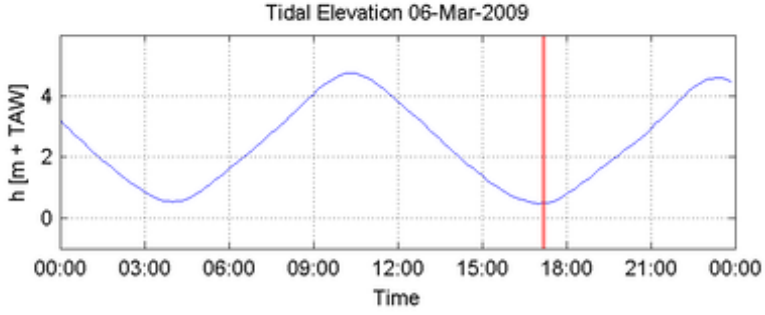
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3128DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
17:09 - 17:13

Time after HW [HH:MM]
-6:08

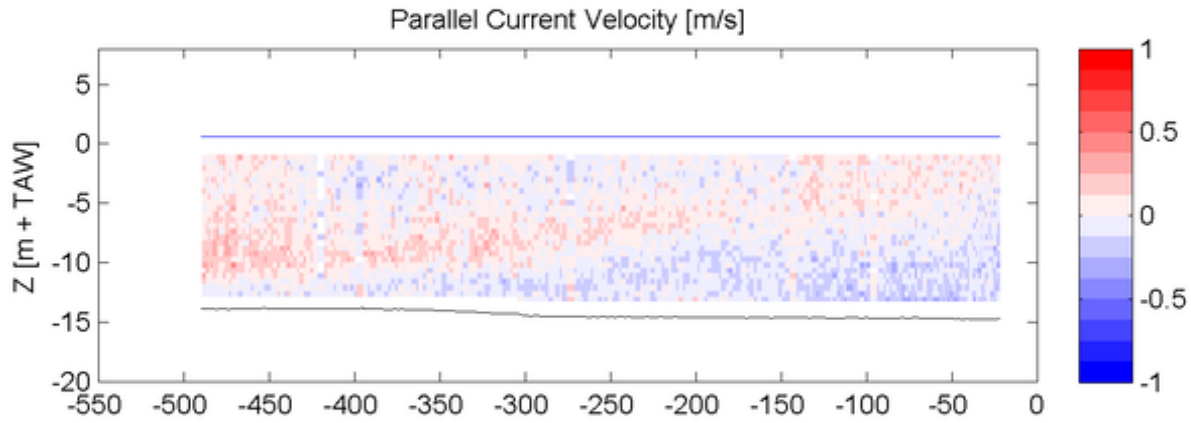
Data Processed by:

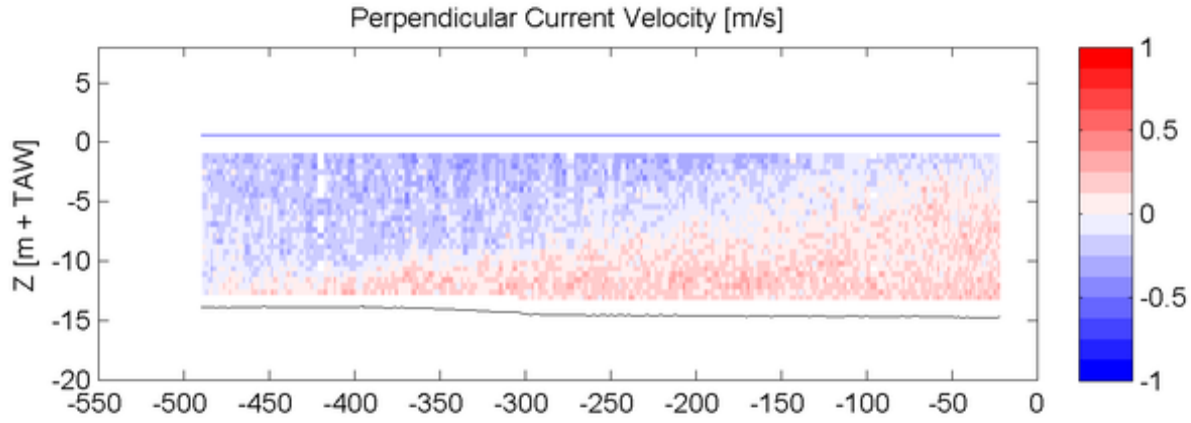
In association with :

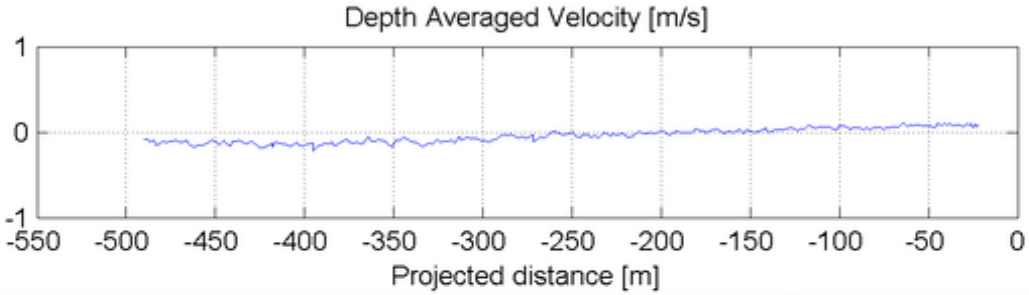
I/RA/11283/08.087/MSA

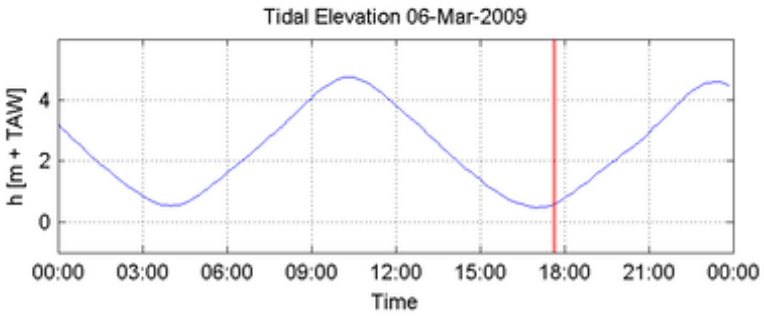
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3132DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
17:36 - 17:39

Time after HW [HH:MM]
-5:42

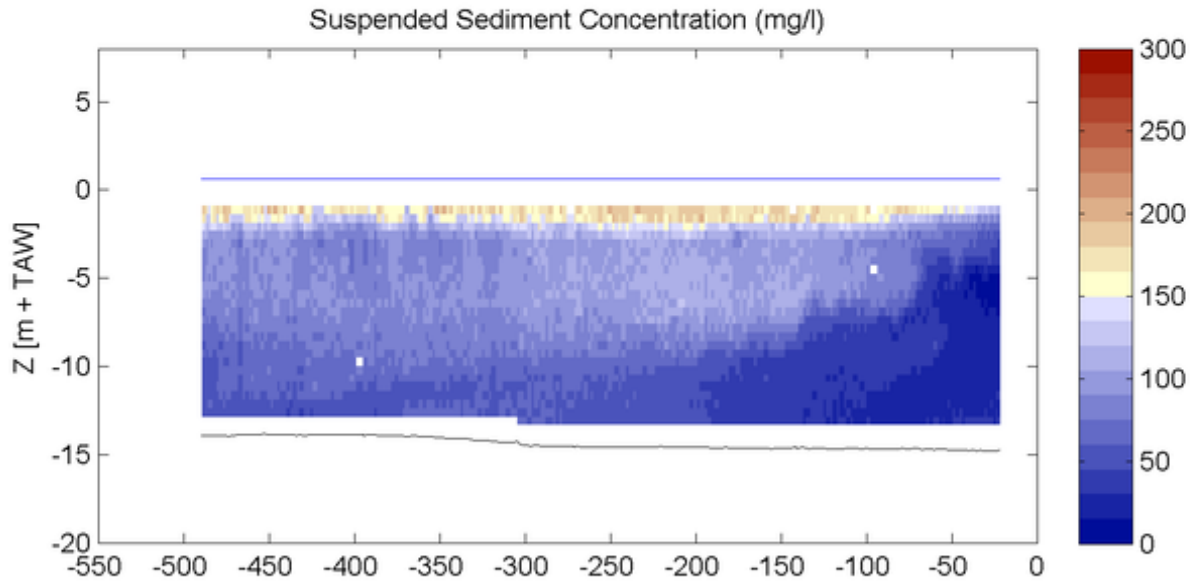
Data Processed by:

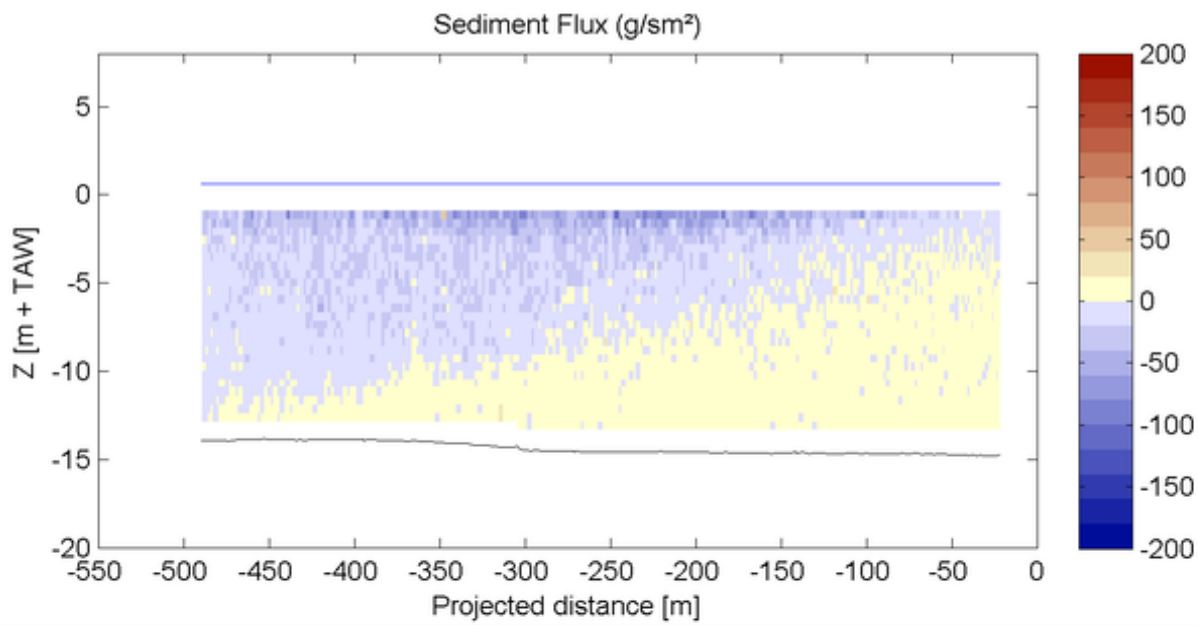
In association with :

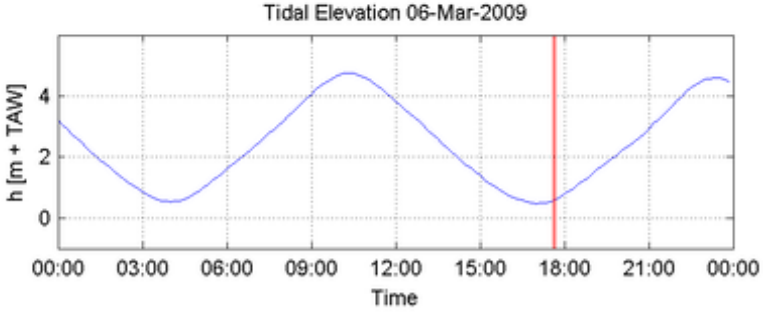
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3132DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
17:36 - 17:39

Time after HW [HH:MM]
-5:42

Data Processed by:

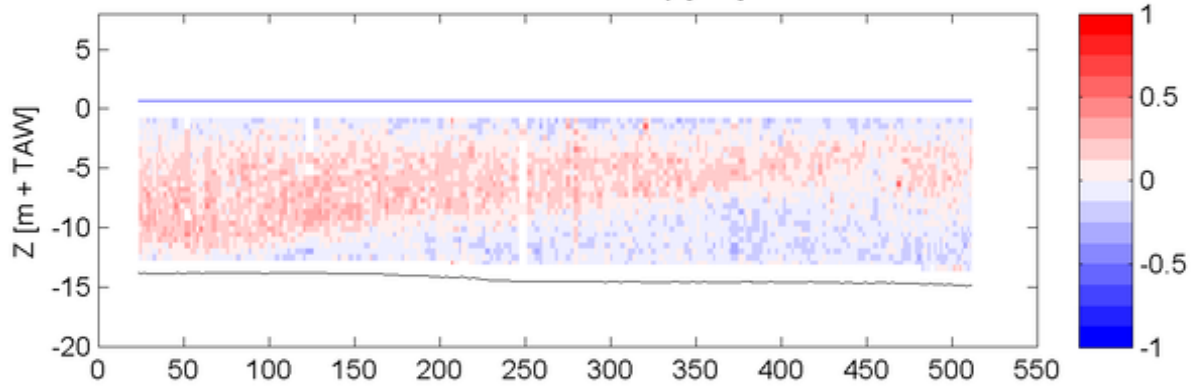
In association with :

I/RA/11283/08.087/MSA

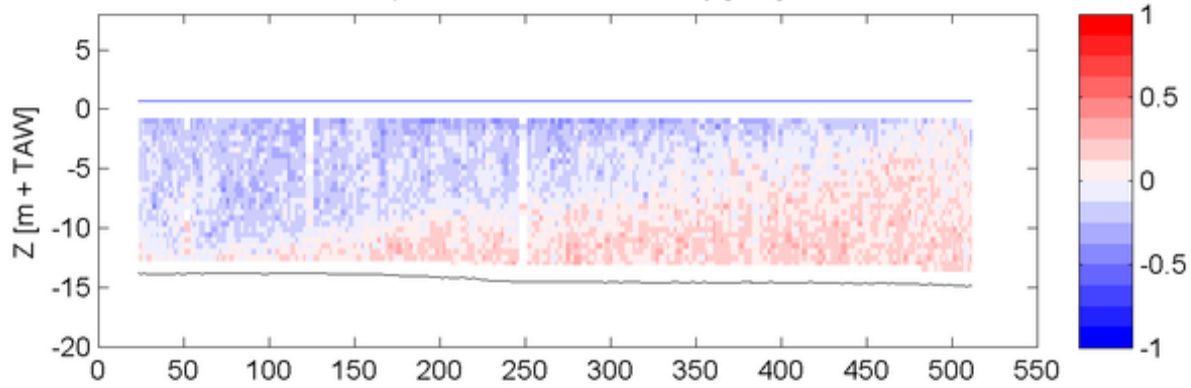
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3134DGDtlr_sub.csv	Location: Deurganckdok

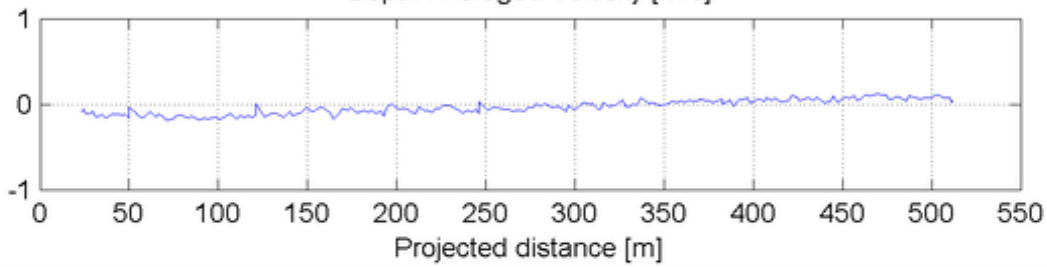
Parallel Current Velocity [m/s]



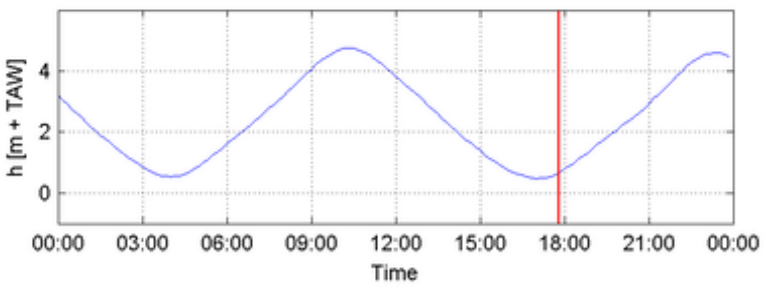
Perpendicular Current Velocity [m/s]



Depth Averaged Velocity [m/s]



Tidal Elevation 06-Mar-2009



HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
17:46 - 17:49

Time after HW [HH:MM]
-5:32

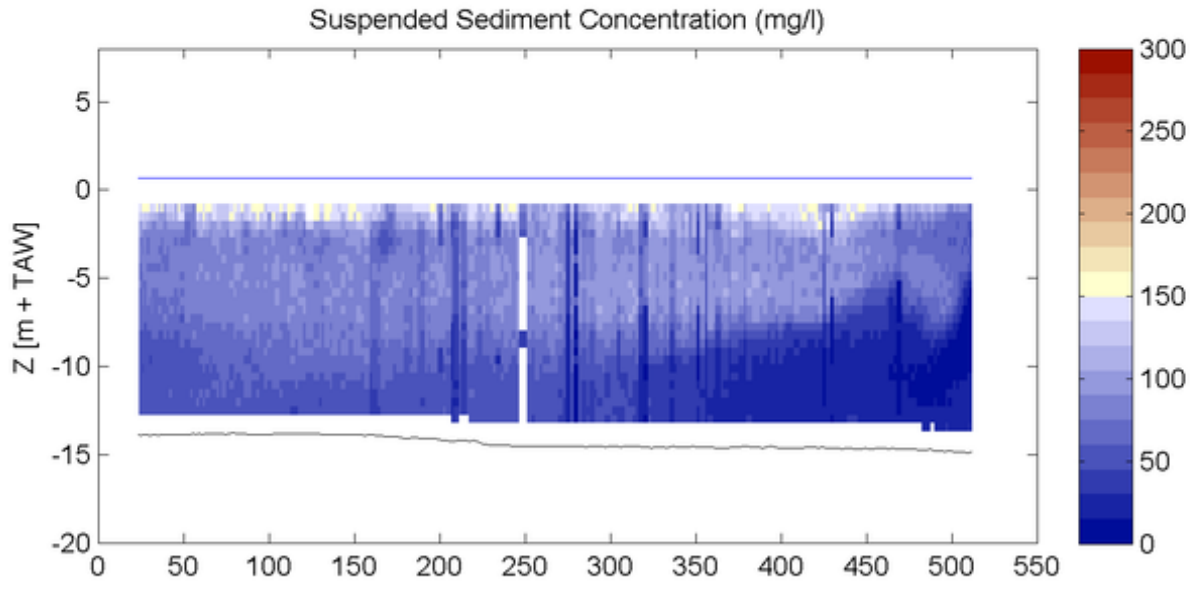
Data Processed by:

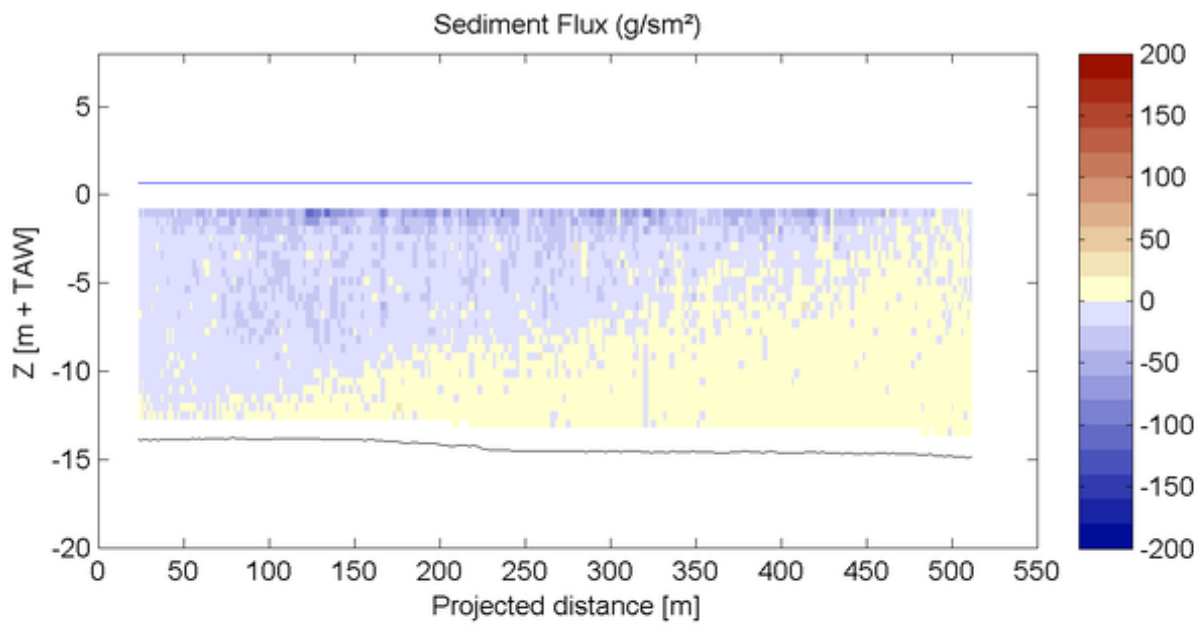
In association with :

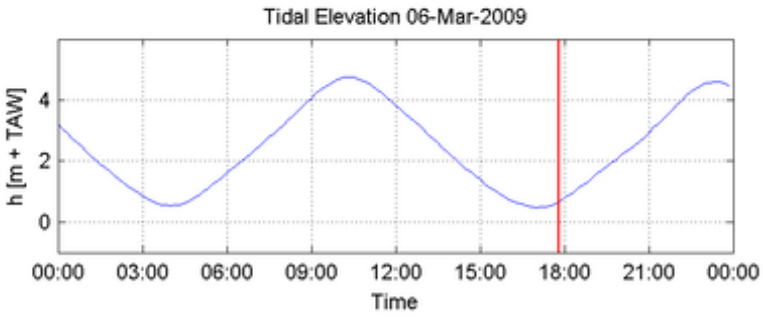
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3134DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
17:46 - 17:49

Time after HW [HH:MM]
-5:32

Data Processed by:

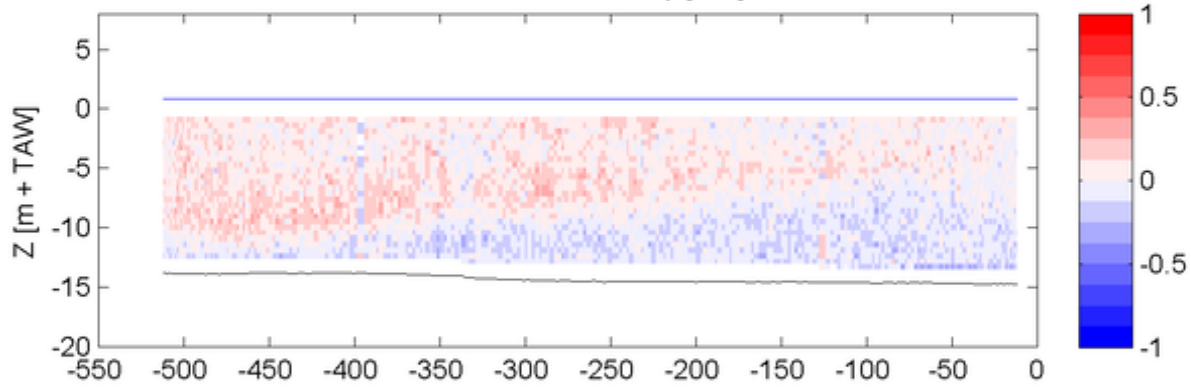
In association with :

I/RA/11283/08.087/MSA

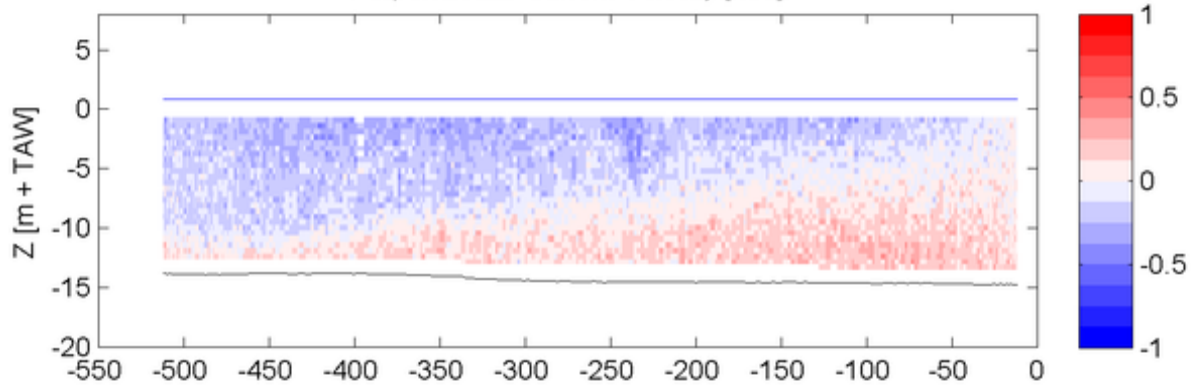
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3136DGDtrl_sub.csv	Location: Deurganckdok

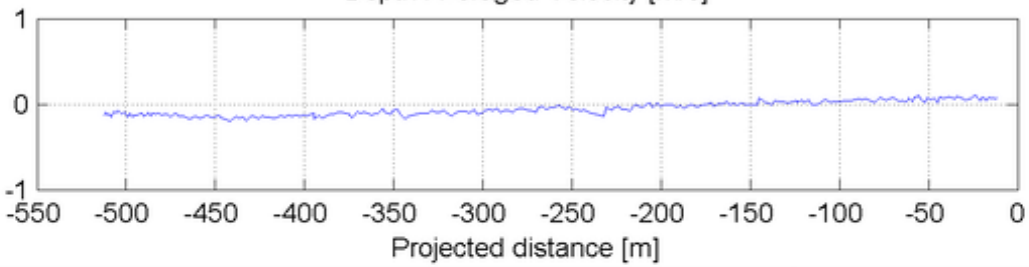
Parallel Current Velocity [m/s]



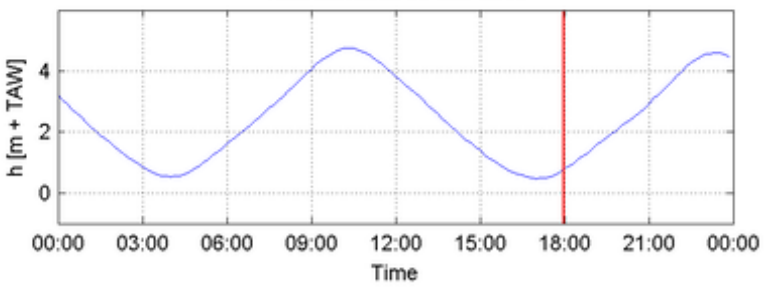
Perpendicular Current Velocity [m/s]



Depth Averaged Velocity [m/s]



Tidal Elevation 06-Mar-2009



HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
17:56 - 17:59

Time after HW [HH:MM]
-5:22

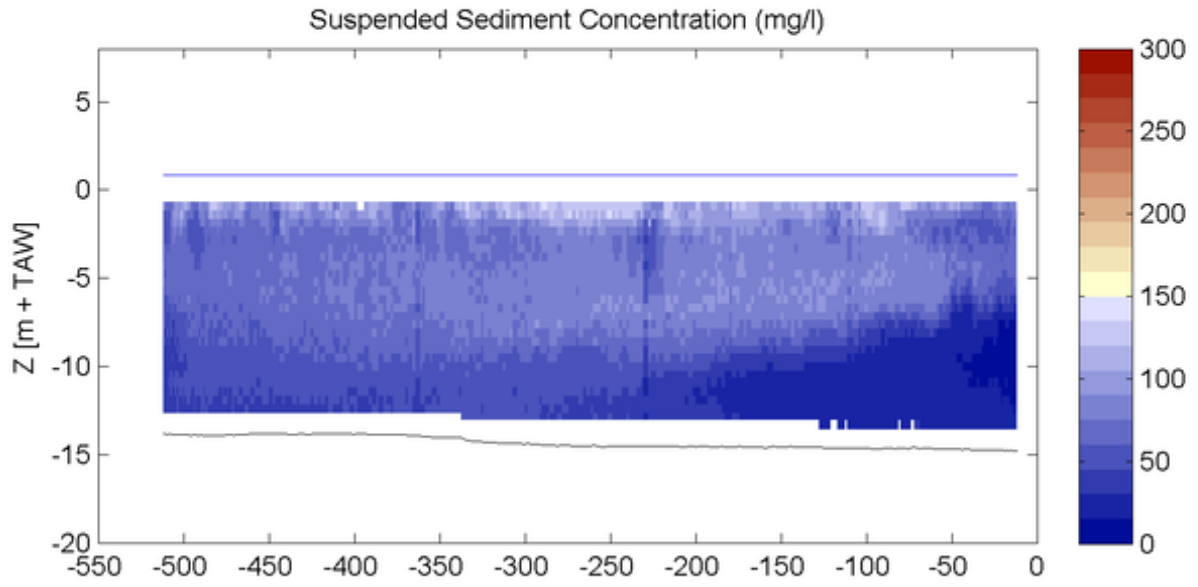
Data Processed by:

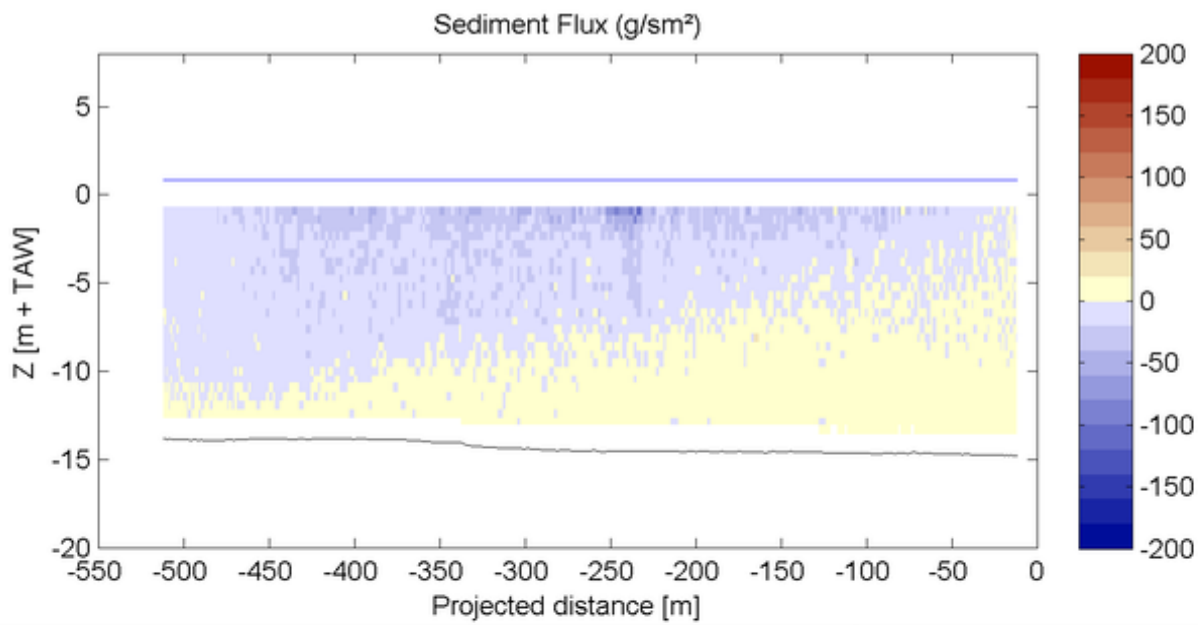
In association with :

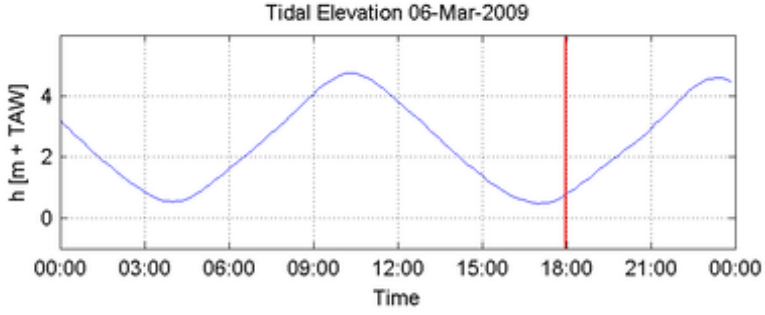
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3136DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
17:56 - 17:59

Time after HW [HH:MM]
-5:22

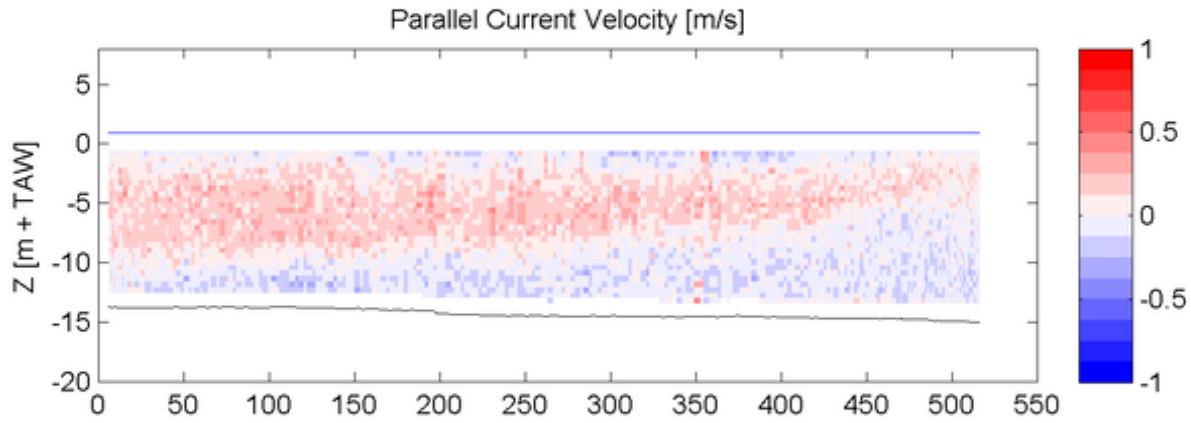
Data Processed by:

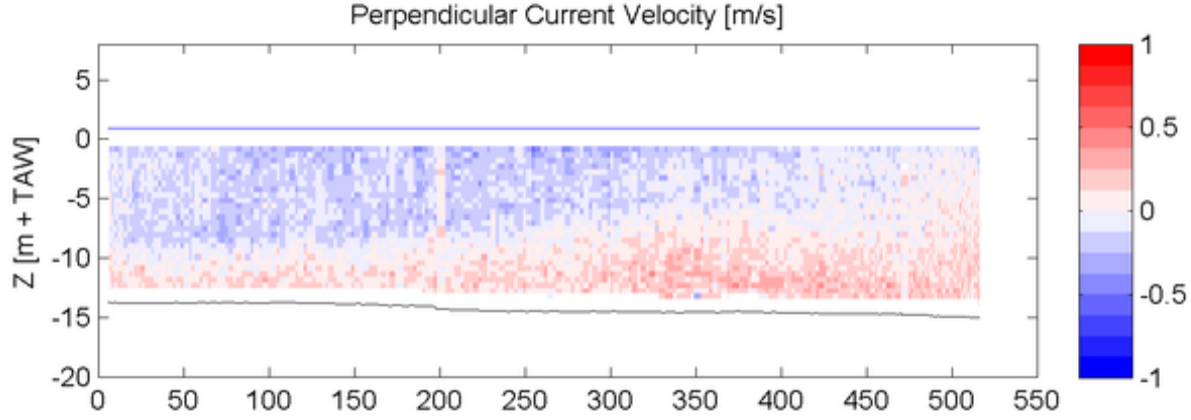
In association with :

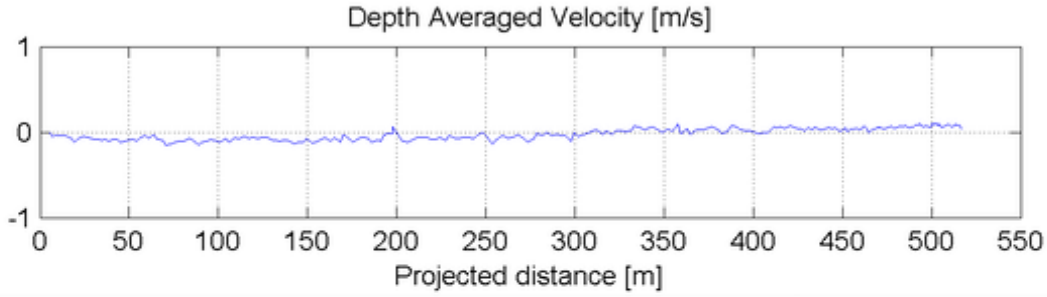
I/RA/11283/08.087/MSA

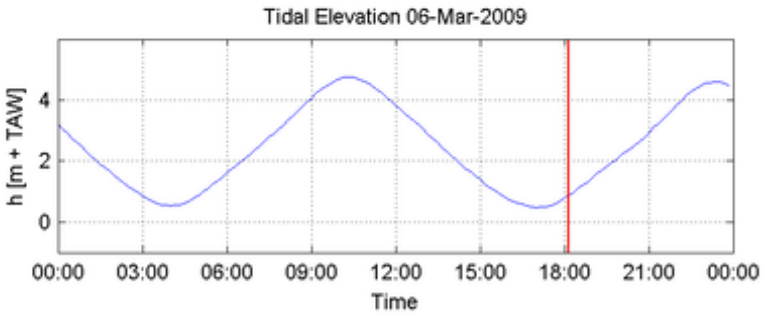
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3138DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
18:06 - 18:09

Time after HW [HH:MM]
-5:11

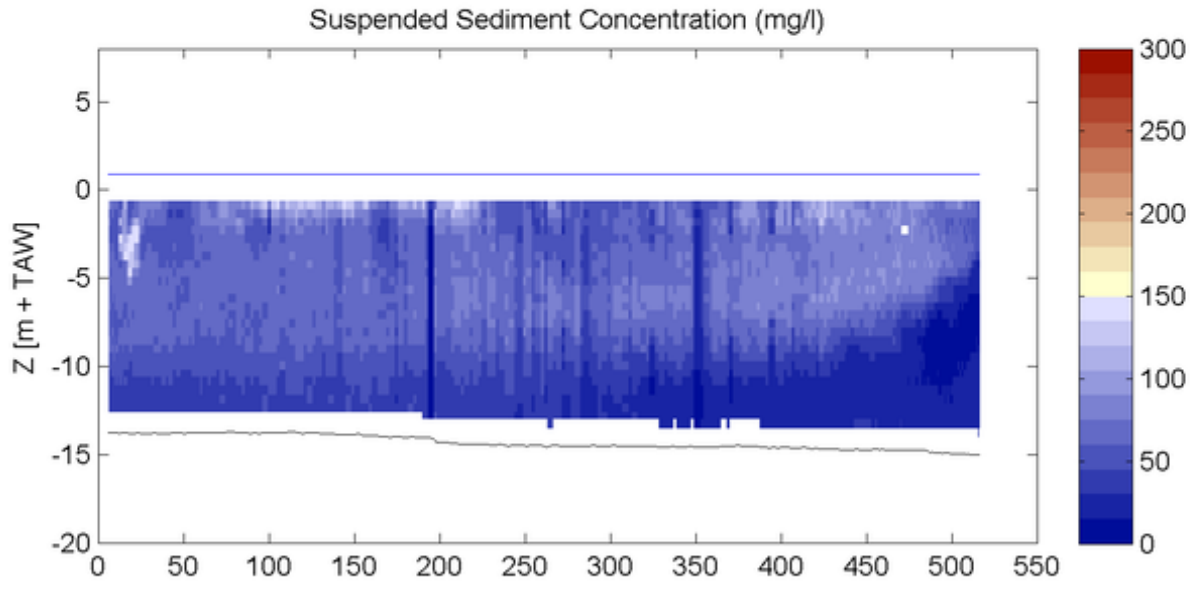
Data Processed by:

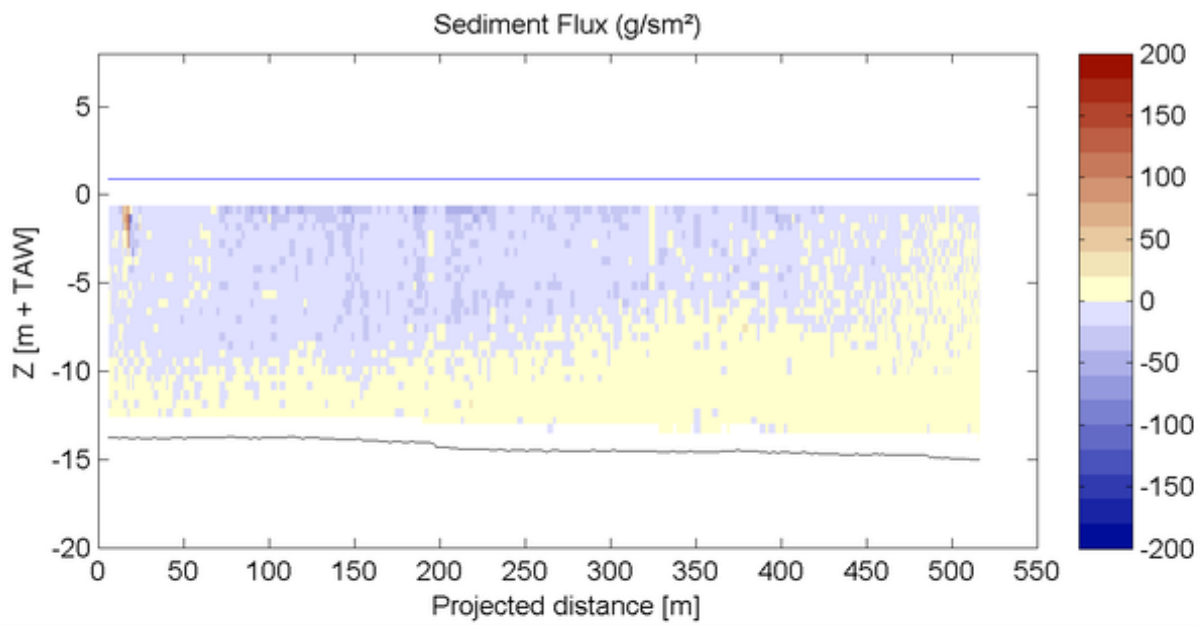
In association with :

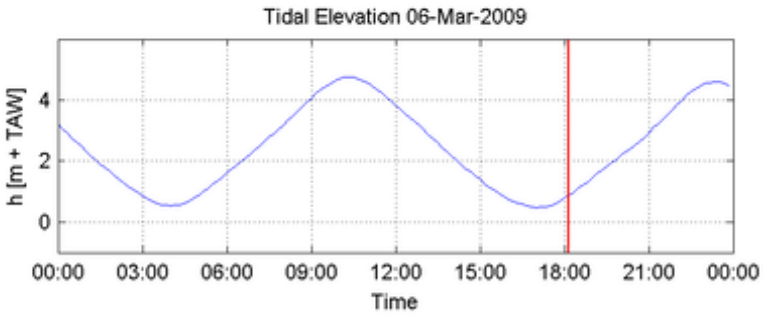
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3138DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
18:06 - 18:09

Time after HW [HH:MM]
-5:11

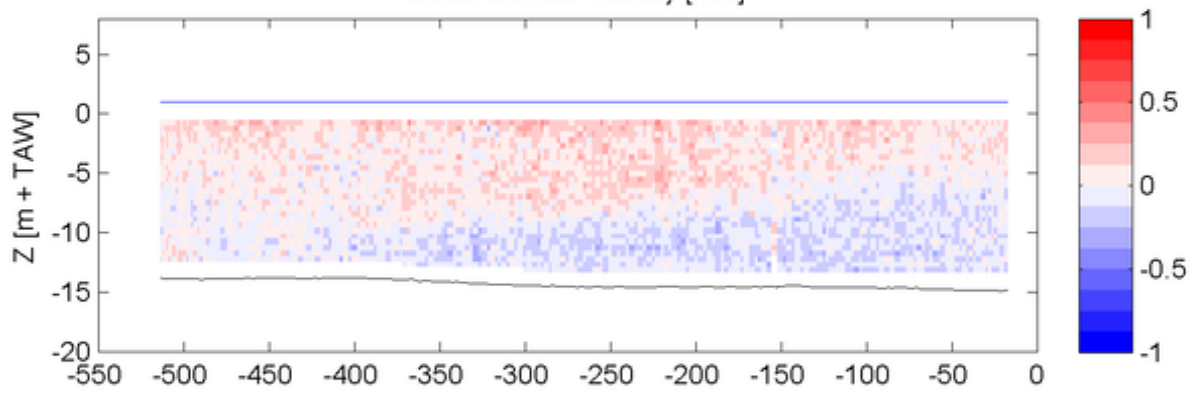
Data Processed by:

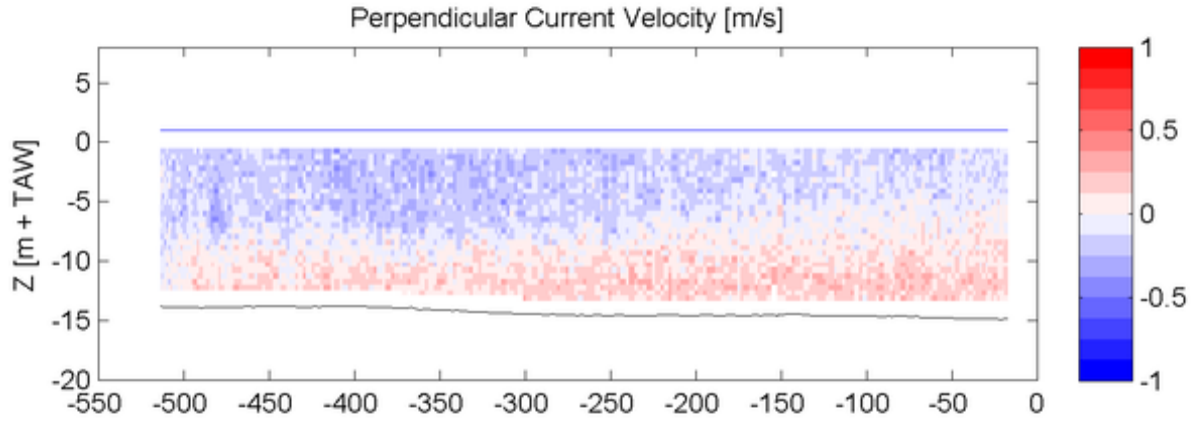
In association with :

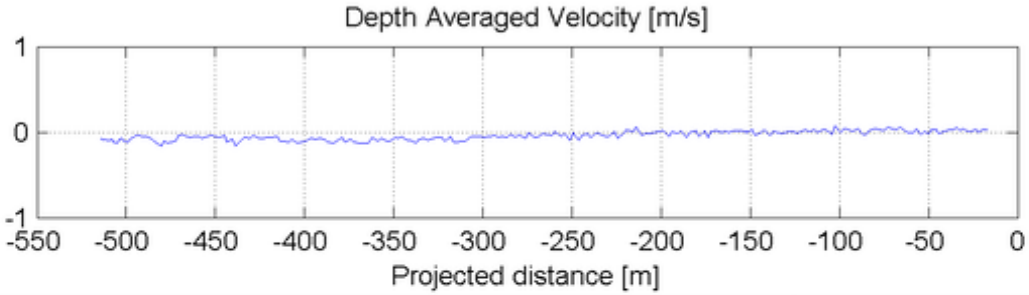
I/RA/11283/08.087/MSA

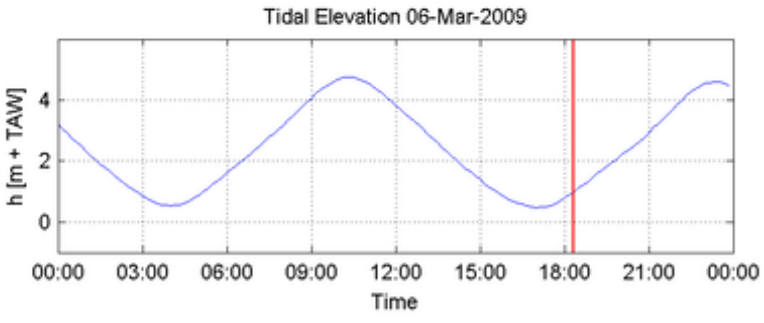
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3140DGDtrl_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
18:16 - 18:19

Time after HW [HH:MM]
-5:01

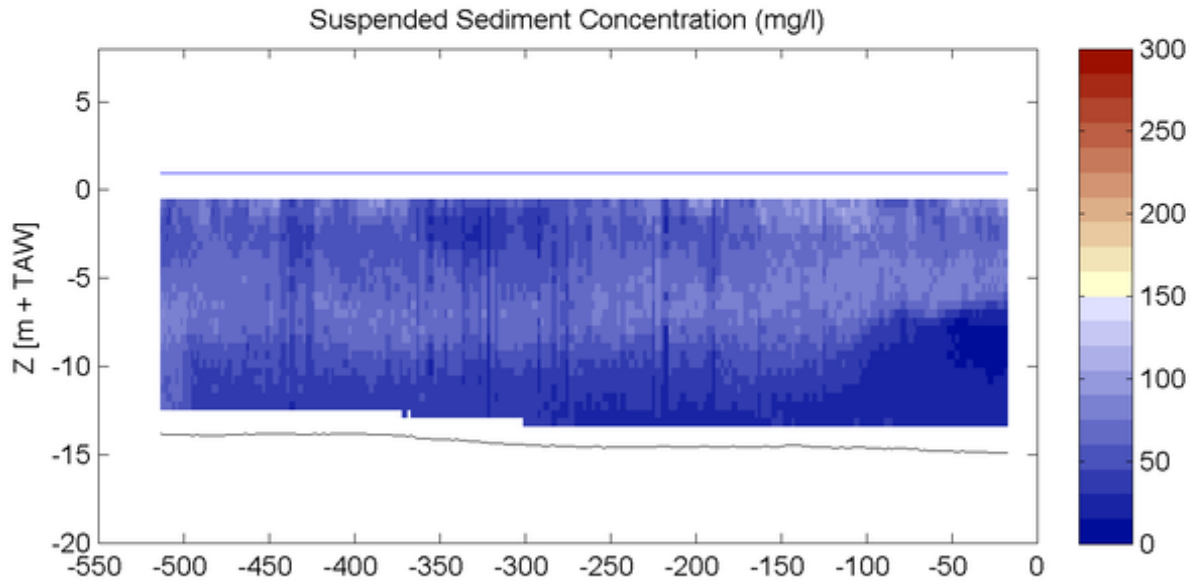
Data Processed by:

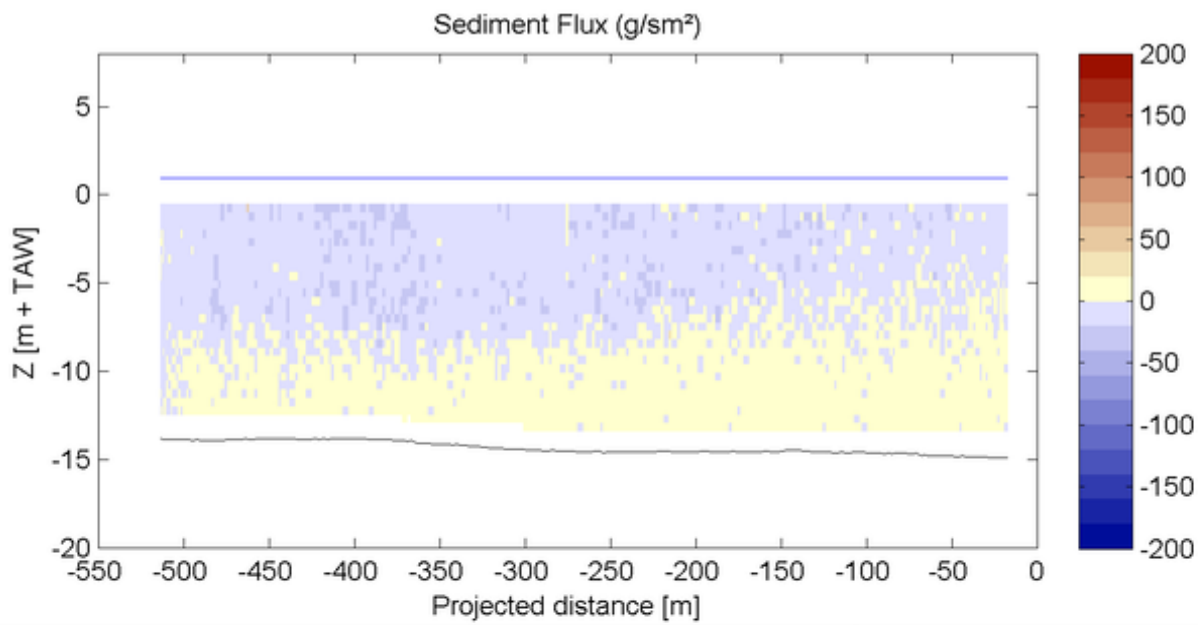
In association with :

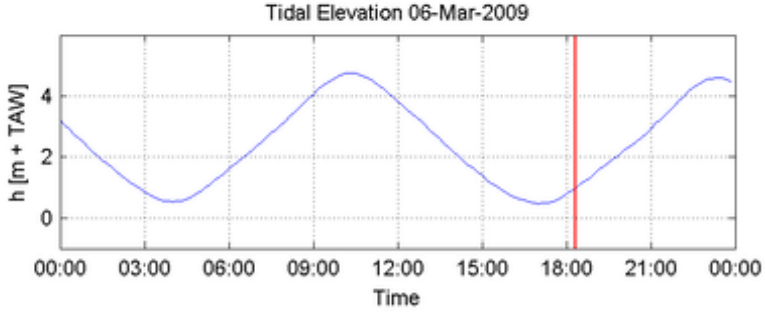
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3140DGDtrl_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
18:16 - 18:19

Time after HW [HH:MM]
-5:01

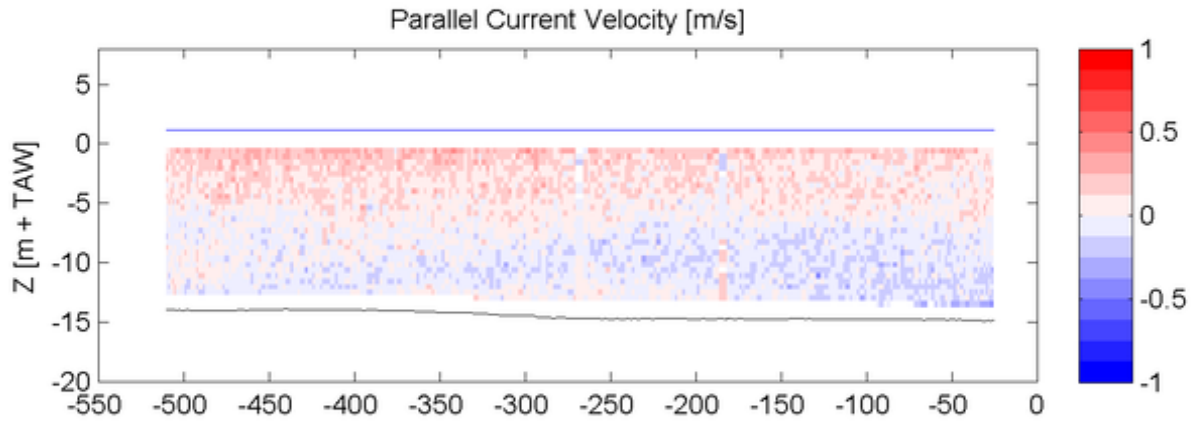
Data Processed by:

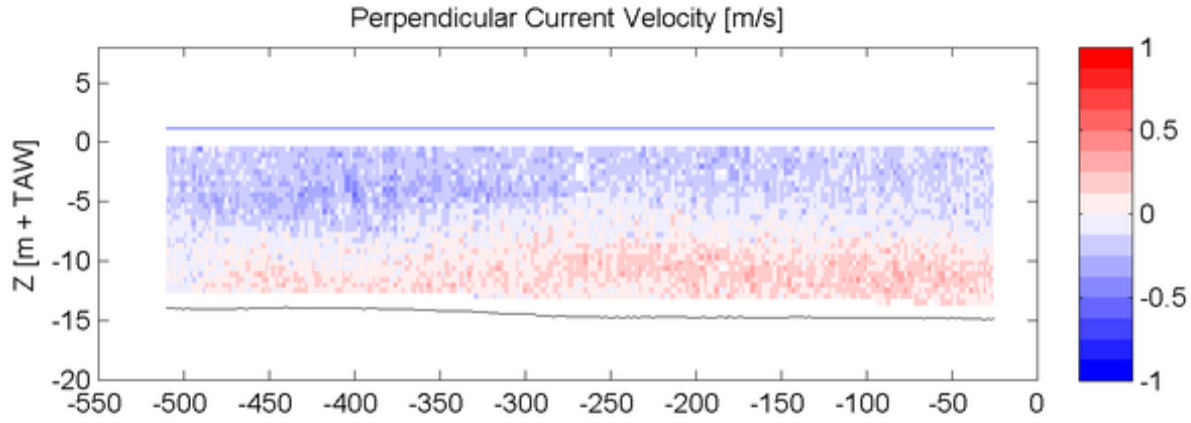
In association with :

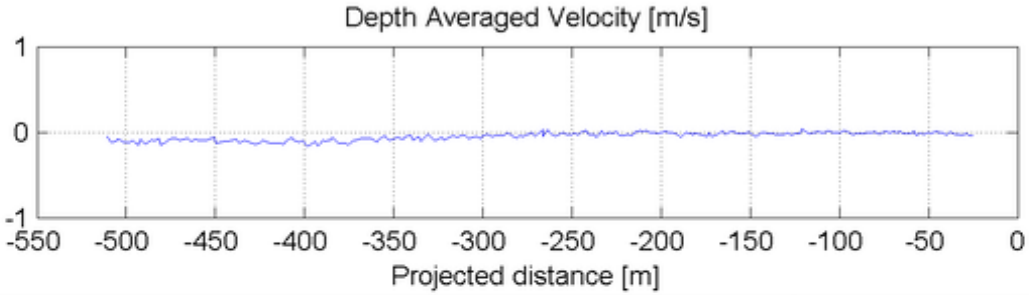
I/RA/11283/08.087/MSA

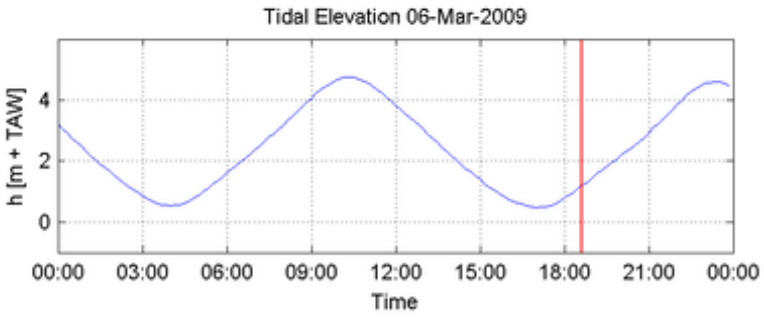
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3144DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
18:34 - 18:37

Time after HW [HH:MM]
-4:44

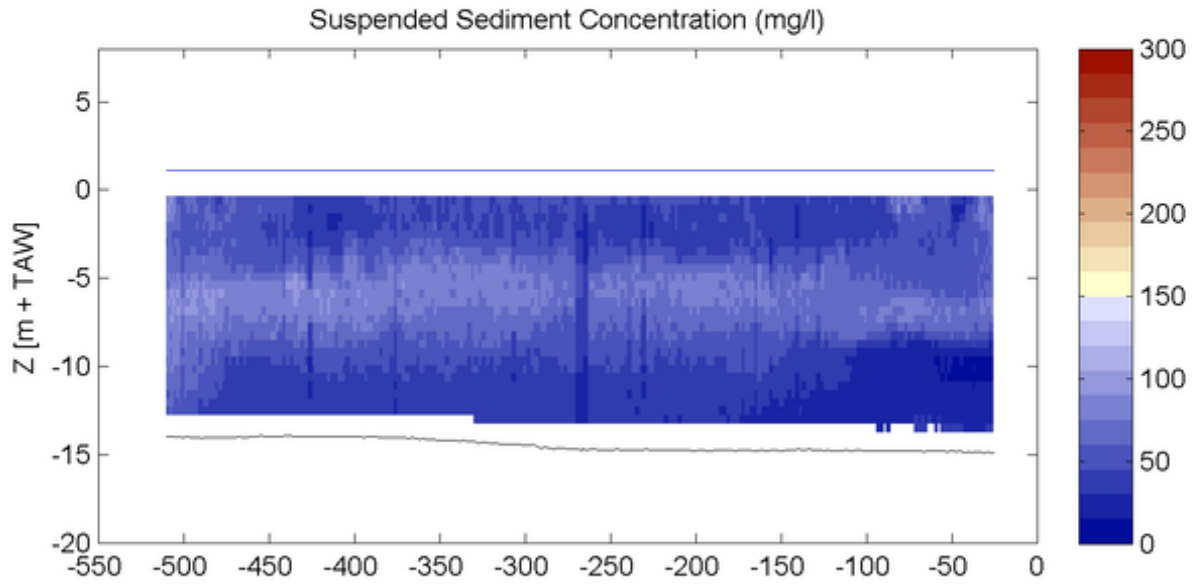
Data Processed by:

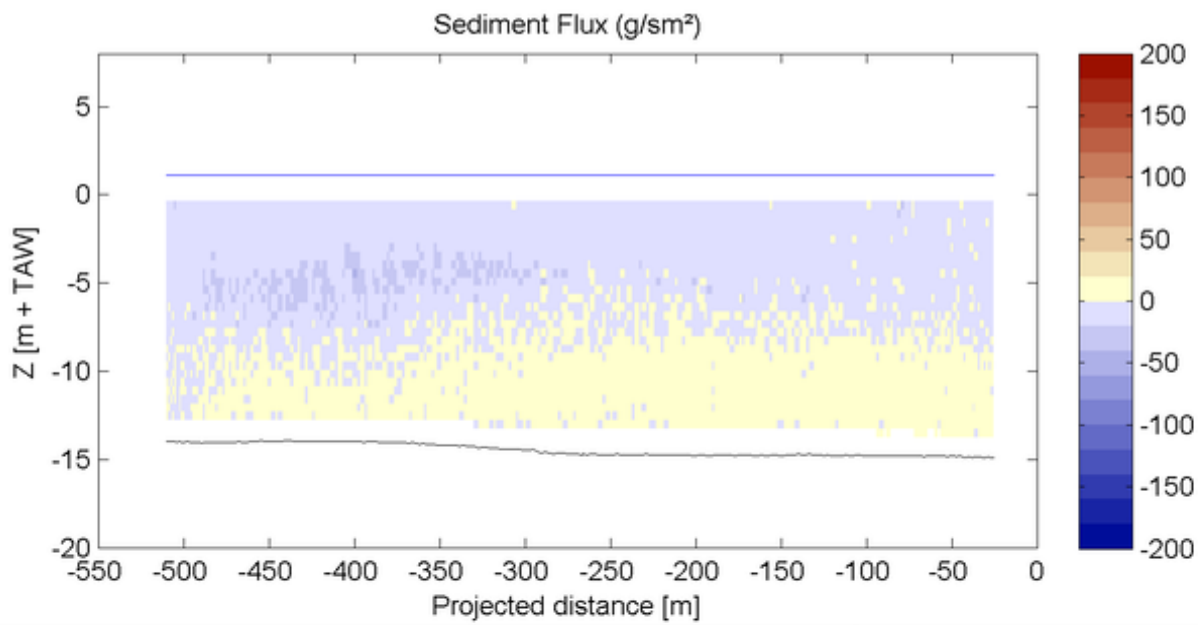
In association with :

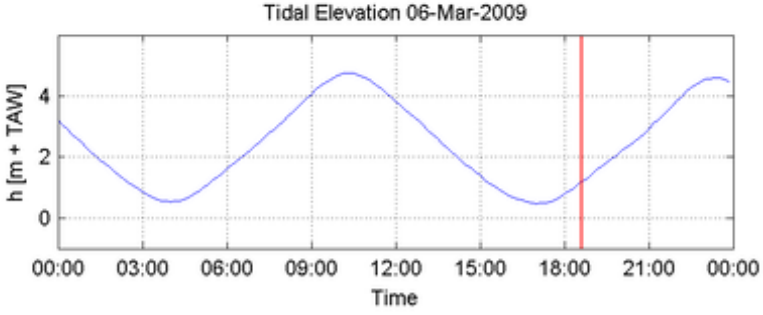
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3144DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
18:34 - 18:37

Time after HW [HH:MM]
-4:44

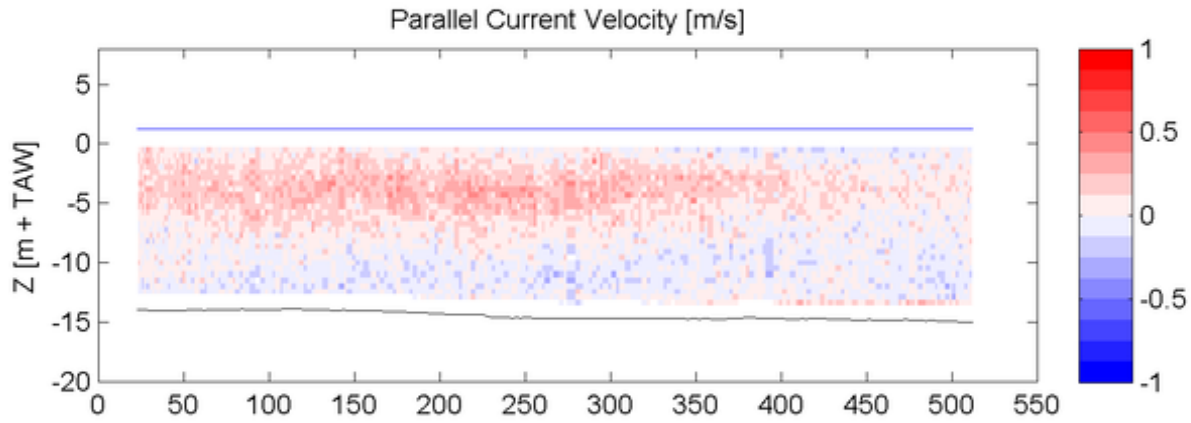
Data Processed by:

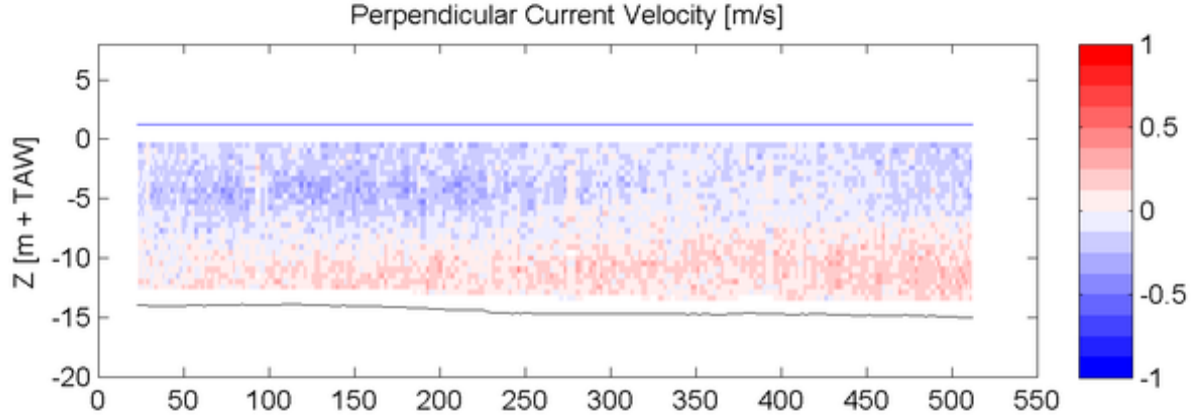
In association with :

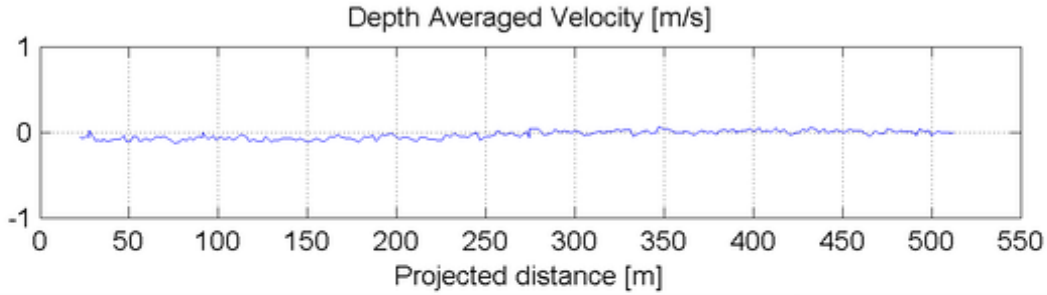
I/RA/11283/08.087/MSA

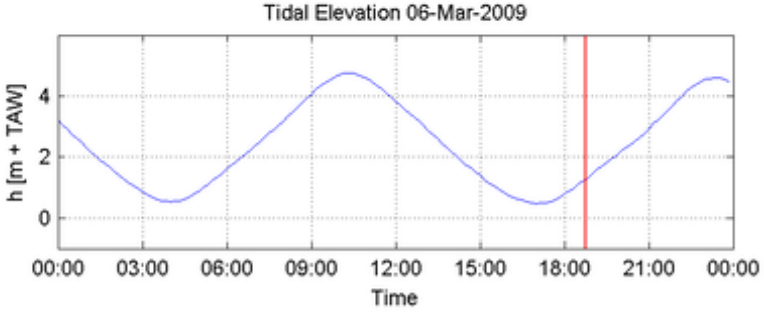
Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3146DGDtlr_sub.csv	Location: Deurganckdok









HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :
06-Mar-2009
18:43 - 18:46

Time after HW [HH:MM]
-4:35

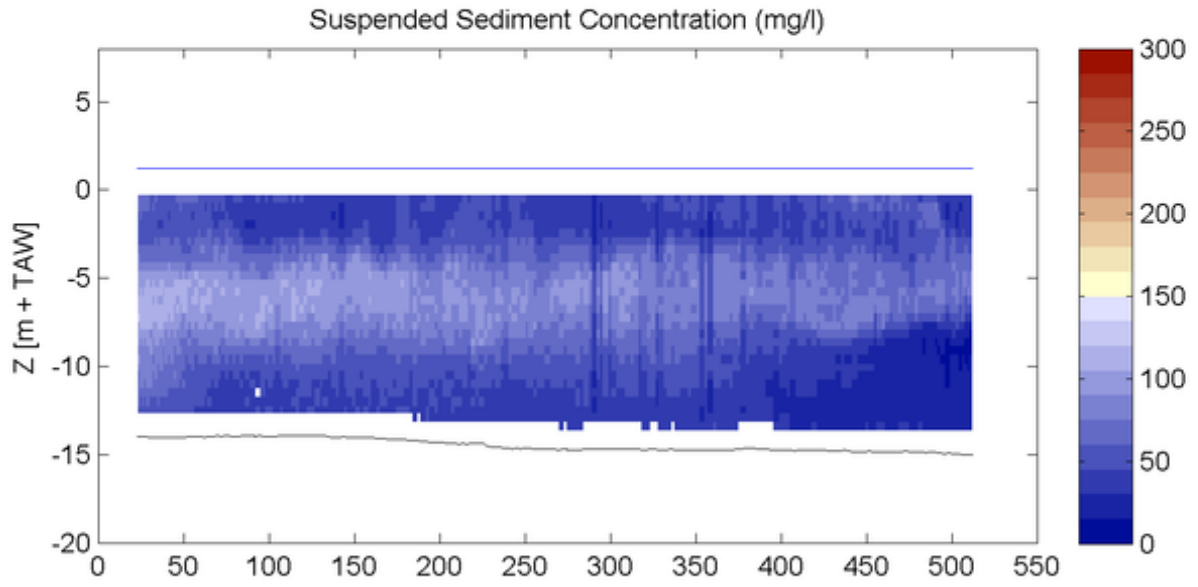
Data Processed by:

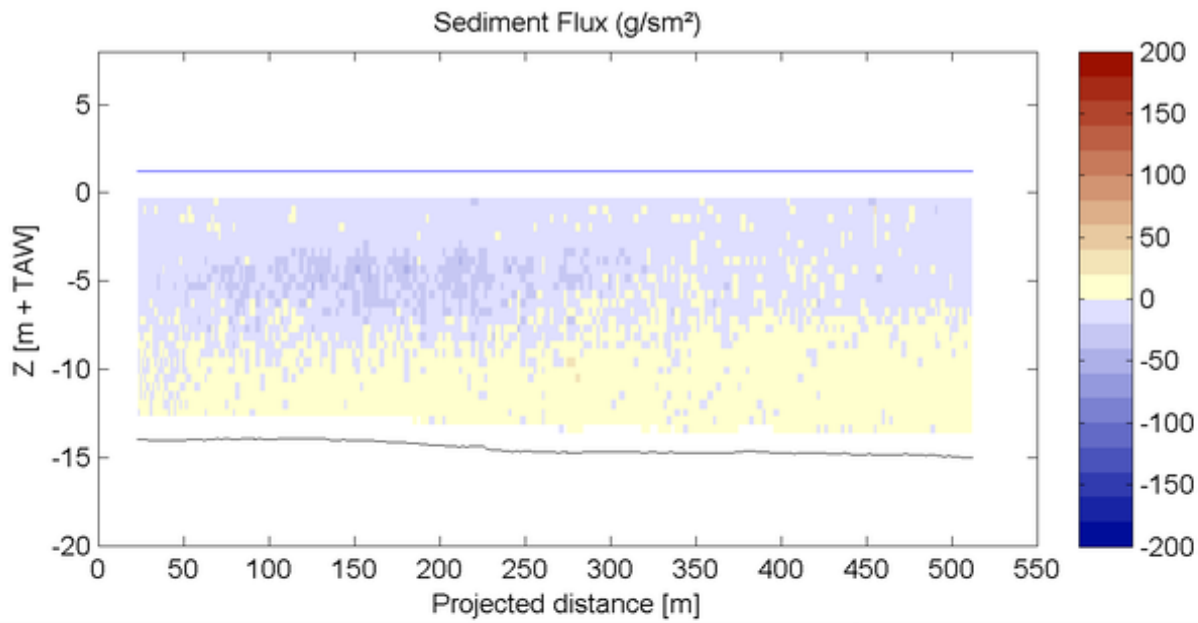
In association with :

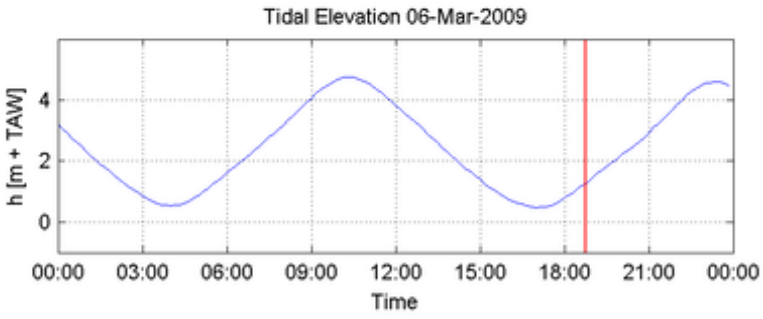
I/RA/11283/08.087/MSA

Opvolging aanslibbing DGD

11283	Equipment(s): ADCP
Sourcefile: 3146DGDtlr_sub.csv	Location: Deurganckdok







HW/LW:
10:20: h = 4.75 m+TAW
17:00: h = 0.48 m+TAW
23:20: h = 4.59 m+TAW

Date / Time [MET] :

06-Mar-2009

18:43 - 18:46

Time after HW [HH:MM]

-4:35

Data Processed by:

In association with :

I/RA/11283/08.087/MSA

APPENDIX G. DISCHARGE, SEDIMENT FLUX AND AVERAGE SEDIMENT CONCENTRATION FOR THE TOTAL CROSS-SECTION

Discharge distribution over the cross section: positive is from dock to river

Filename	*Time after HW [hh:mm]*	*Time [hh:mm]*	*Qmid [m3/s]*	*Qtop [m3/s]*	*Qbot [m3/s]*	*Qleft [m3/s]*	*Qright [m3/s]*	*Qtot [m3/s]*	*QVolBal [m3/s]*
3002DGDtlr_sub.csv	-4:9	6:10	-325	-86	79	5	-10	-338	-204
3004DGDtrl_sub.csv	-3:59	6:20	-379	-125	104	15	-1	-374	-212
3006DGDtlr_sub.csv	-3:49	6:30	-304	-106	76	22	-48	-382	-212
3008DGDtrl_sub.csv	-3:39	6:40	-424	-96	84	12	-44	-434	-194
3010DGDtlr_sub.csv	-3:29	6:50	-376	-60	71	33	-41	-406	-217
3012DGDtrl_sub.csv	-3:20	6:59	-442	-70	79	14	-56	-444	-221
3014DGDtlr_sub.csv	-3:10	7:09	-420	-55	77	21	-19	-433	-224
3016DGDtrl_sub.csv	-2:3	7:17	-538	-51	83	12	-43	-478	-263
3018DGDtlr_sub.csv	-2:52	7:27	-377	5	32	43	-28	-373	-255
3020DGDtrl_sub.csv	-2:43	7:36	-414	6	28	16	-39	-380	-179
3022DGDtlr_sub.csv	-2:32	7:47	-358	16	-7	38	-32	-378	-238
3024DGDtrl_sub.csv	-2:23	7:56	-424	-7	-24	7	-45	-430	-242
3026DGDtlr_sub.csv	-2:14	8:05	-265	9	-22	65	-50	-323	-269
3028DGDtrl_sub.csv	-2:5	8:14	-285	27	-51	9	-86	-364	-221
3030DGDtlr_sub.csv	-1:55	8:24	-404	40	-31	50	-25	-387	-253
3032DGDtrl_sub.csv	-1:47	8:32	-391	30	-21	19	-89	-436	-268
3034DGDtlr_sub.csv	-1:35	8:44	-458	9	-21	60	-24	-444	-240
3036DGDtrl_sub.csv	-1:24	8:55	-368	-8	-14	14	-96	-435	-239
3038DGDtlr_sub.csv	-1:15	9:04	-293	-8	-21	79	-48	-344	-287
3040DGDtrl_sub.csv	-1:7	9:12	-341	-27	-30	14	-46	-362	-197
3042DGDtlr_sub.csv	-0:57	9:22	-204	22	-56	100	-23	-209	-183
3044DGDtrl_sub.csv	-0:46	9:33	2	22	-38	21	-190	-43	-157
3046DGDtlr_sub.csv	-0:30	9:49	553	143	-45	75	-88	487	-147

Filename	*Time after HW [hh:mm]*	*Time [hh:mm]*	*Qmid [m3/s]*	*Qtop [m3/s]*	*Qbot [m3/s]*	*Qleft [m3/s]*	*Qright [m3/s]*	*Qtot [m3/s]*	*QVolBal [m3/s]*
3048DGDtrl_sub.csv	-0:21	9:58	501	173	-88	29	-63	601	-102
3050DGDtlr_sub.csv	-0:05	10:14	547	214	-100	106	-10	693	-20
3052DGDtrl_sub.csv	0:02	10:22	486	199	-97	32	-43	621	9
3054DGDtlr_sub.csv	0:12	10:32	502	217	-112	69	-17	636	57
3056DGDtrl_sub.csv	0:22	10:42	475	182	-81	22	2	633	120
3058DGDtlr_sub.csv	0:32	10:52	566	210	-110	63	4	692	112
3060DGDtrl_sub.csv	0:43	11:03	421	213	-40	13	6	622	160
3062DGDtlr_sub.csv	0:53	11:13	426	210	-132	40	4	541	184
3064DGDtrl_sub.csv	1:04	11:24	339	206	-131	15	8	471	171
3066DGDtlr_sub.csv	1:14	11:34	430	222	-143	2	19	476	250
3068DGDtrl_sub.csv	1:25	11:45	177	185	-95	6	29	362	222
3070DGDtlr_sub.csv	1:35	11:55	302	193	-83	7	20	397	271
3072DGDtrl_sub.csv	1:45	12:05	188	172	-64	5	25	352	187
3074DGDtlr_sub.csv	1:58	12:18	263	152	-34	-18	6	335	221
3076DGDtrl_sub.csv	2:07	12:27	109	134	-50	5	10	260	230
3078DGDtlr_sub.csv	2:16	12:36	235	153	-32	-1	10	331	246
3080DGDtrl_sub.csv	2:26	12:46	200	131	-40	-1	26	350	206
3082DGDtlr_sub.csv	2:38	12:58	338	128	-20	11	13	416	249
3084DGDtrl_sub.csv	2:50	13:10	204	86	6	-23	24	341	258
3086DGDtlr_sub.csv	2:59	13:19	296	95	-1	-21	14	351	212
3088DGDtrl_sub.csv	3:08	13:28	182	85	-1	-11	20	314	242
3090DGDtlr_sub.csv	3:17	13:37	326	93	3	-35	9	356	285
3092DGDtrl_sub.csv	3:30	13:50	180	78	11	-7	8	300	247
3094DGDtlr_sub.csv	3:40	14:00	245	87	-5	-6	8	300	233
3096DGDtrl_sub.csv	3:49	14:09	138	66	-10	-6	25	258	223

Filename	*Time after HW [hh:mm]*	*Time [hh:mm]*	*Qmid [m3/s]*	*Qtop [m3/s]*	*Qbot [m3/s]*	*Qleft [m3/s]*	*Qright [m3/s]*	*Qtot [m3/s]*	*QVolBal [m3/s]*
3098DGDtlr_sub.csv	3:58	14:18	298	81	-2	-19	6	314	252
3100DGDtrl_sub.csv	4:09	14:29	115	60	26	-20	31	255	192
3102DGDtlr_sub.csv	4:18	14:38	261	71	10	-31	6	271	184
3104DGDtrl_sub.csv	4:33	14:53	93	29	16	2	3	188	195
3106DGDtlr_sub.csv	4:45	15:05	172	31	42	-15	11	196	254
3108DGDtrl_sub.csv	4:59	15:19	-12	-30	92	-8	23	118	159
3110DGDtlr_sub.csv	5:08	15:28	146	-22	90	-10	6	159	158
3112DGDtrl_sub.csv	5:17	15:37	0	-55	99	-21	24	87	204
3114DGDtlr_sub.csv	5:29	15:49	126	-46	89	-45	3	92	153
3116DGDtrl_sub.csv	5:38	15:58	-33	-62	87	-17	26	28	147
3118DGDtlr_sub.csv	5:56	16:16	28	-58	75	-10	3	11	82
3120DGDtrl_sub.csv	6:05	16:25	-87	-86	81	-63	63	-62	70
3122DGDtlr_sub.csv	6:14	16:34	-40	-84	92	-23	10	-74	100
3124DGDtrl_sub.csv	6:28	16:48	-153	-121	94	-10	13	-139	50
3126DGDtlr_sub.csv	-6:18	17:01	-38	-107	89	-31	6	-110	-6
3128DGDtrl_sub.csv	-6:8	17:11	-140	-131	102	-14	24	-170	-28
3132DGDtrl_sub.csv	-5:42	17:37	-238	-130	93	-52	23	-276	-134
3134DGDtlr_sub.csv	-5:32	17:47	-208	-126	77	-28	3	-300	-179
3136DGDtrl_sub.csv	-5:22	17:57	-326	-144	103	-13	12	-322	-176
3138DGDtlr_sub.csv	-5:11	18:08	-181	-106	107	-2	2	-223	-118
3140DGDtrl_sub.csv	-1:5	18:18	-240	-110	105	-9	4	-260	-192
3144DGDtlr_sub.csv	-4:44	18:35	-319	-116	78	-15	-11	-337	-170
3146DGDtlr_sub.csv	-4:35	18:44	-199	-86	71	-18	-6	-238	-170

Sediment flux distribution over the cross section: positive is from dock to river

Filename	*Time to HW [hh:mm]*	*Time [hh:mm]*	*Fmid [kg/s]*	*Ftop [kg/s]*	*Fbot [kg/s]*	*Fleft [kg/s]*	*Fright [kg/s]*	*Ftot [kg/s]*
3002DGDtlr_sub.csv	-4:9	6:10	-35.3	-6.8	3.6	0.1	-0.5	-38.9
3004DGDtrl_sub.csv	-3:59	6:20	-60.1	-23.5	5.1	1.3	-0.3	-68.7
3006DGDtlr_sub.csv	-3:49	6:30	-43.5	-20.6	1.0	1.8	-2.3	-65.2
3008DGDtrl_sub.csv	-3:39	6:40	-45.6	-16.5	4.8	1.0	-3.0	-56.6
3010DGDtlr_sub.csv	-3:29	6:50	-33.8	-8.8	4.0	2.6	-2.7	-41.8
3012DGDtrl_sub.csv	-3:20	6:59	-31.1	-7.3	4.3	0.9	-3.5	-35.5
3014DGDtlr_sub.csv	-3:10	7:09	-26.2	-5.5	3.9	1.2	-0.9	-30.9
3016DGDtrl_sub.csv	-2:3	7:17	-36.3	-5.6	4.6	0.7	-2.3	-37.2
3018DGDtlr_sub.csv	-2:52	7:27	-39.9	-2.5	1.9	2.9	-2.6	-42.2
3020DGDtrl_sub.csv	-2:43	7:36	-48.8	-3.8	1.1	1.3	-3.6	-50.6
3022DGDtlr_sub.csv	-2:32	7:47	-45.7	-2.4	-2.1	4.1	-2.6	-52.1
3024DGDtrl_sub.csv	-2:23	7:56	-51.6	-6.3	-3.3	1.0	-3.7	-55.5
3026DGDtlr_sub.csv	-2:14	8:05	-28.2	-1.4	-0.6	6.3	-4.5	-35.1
3028DGDtrl_sub.csv	-2:5	8:14	-24.6	1.9	-5.2	0.8	-5.6	-30.5
3030DGDtlr_sub.csv	-1:55	8:24	-25.7	2.7	-2.6	3.8	-1.3	-25.3
3032DGDtrl_sub.csv	-1:47	8:32	-23.2	2.1	-1.8	1.3	-5.0	-24.9
3034DGDtlr_sub.csv	-1:35	8:44	-21.0	0.2	-0.9	3.3	-1.1	-20.0
3036DGDtrl_sub.csv	-1:24	8:55	-12.6	-0.2	0.2	0.7	-3.7	-15.4
3038DGDtlr_sub.csv	-1:15	9:04	-11.6	-0.9	-0.1	4.7	-2.5	-13.3
3040DGDtrl_sub.csv	-1:7	9:12	-17.6	-2.7	-1.1	0.5	-2.0	-19.5
3042DGDtlr_sub.csv	-0:57	9:22	-15.0	0.2	-3.4	4.5	-1.1	-18.4
3044DGDtrl_sub.csv	-0:46	9:33	-9.6	0.5	-4.5	0.8	-15.1	-20.9
3046DGDtlr_sub.csv	-0:30	9:49	4.8	6.5	-5.2	2.5	-7.8	-4.8
3048DGDtrl_sub.csv	-0:21	9:58	-0.2	6.7	-6.9	1.1	-5.0	-2.2
3050DGDtlr_sub.csv	-0:05	10:14	0.8	8.5	-8.6	4.1	-1.4	0.8
3052DGDtrl_sub.csv	0:02	10:22	0.3	7.5	-10.0	2.0	-4.3	-2.0
3054DGDtlr_sub.csv	0:12	10:32	2.4	7.1	-9.8	4.1	-1.3	1.1
3056DGDtrl_sub.csv	0:22	10:42	6.5	5.5	-8.1	1.4	-4.2	3.0
3058DGDtlr_sub.csv	0:32	10:52	11.0	6.6	-11.1	4.8	-0.2	6.6
3060DGDtrl_sub.csv	0:43	11:03	-4.4	6.2	-8.2	0.6	-0.1	-2.7
3062DGDtlr_sub.csv	0:53	11:13	-2.0	5.0	-9.2	2.7	-0.1	-4.5
3064DGDtrl_sub.csv	1:04	11:24	-1.8	5.1	-9.4	0.6	-0.9	-5.5
3066DGDtlr_sub.csv	1:14	11:34	-1.2	5.3	-8.1	0.1	0.3	-4.6
3068DGDtrl_sub.csv	1:25	11:45	-5.8	4.8	-5.7	-0.1	0.4	-4.8
3070DGDtlr_sub.csv	1:35	11:55	-1.1	6.7	-5.6	-0.2	0.4	-1.6
3072DGDtrl_sub.csv	1:45	12:05	-5.9	5.9	-4.6	0.1	0.5	-2.3
3074DGDtlr_sub.csv	1:58	12:18	-0.6	5.6	-2.1	-1.4	0.1	0.0
3076DGDtrl_sub.csv	2:07	12:27	-3.7	4.6	-2.9	0.2	0.1	-0.6
3078DGDtlr_sub.csv	2:16	12:36	-0.6	4.6	-1.9	-0.2	0.2	0.7
3080DGDtrl_sub.csv	2:26	12:46	-3.6	4.3	-3.3	0.0	0.4	-0.5
3082DGDtlr_sub.csv	2:38	12:58	0.9	4.1	-2.0	0.8	0.4	2.5

Filename	*Time to HW [hh:mm]*	*Time [hh:mm]*	*Fmid [kg/s]*	*Ftop [kg/s]*	*Fbot [kg/s]*	*Fleft [kg/s]*	*Fright [kg/s]*	*Ftot [kg/s]*
3084DGDtrl_sub.csv	2:50	13:10	-0.5	2.9	-0.5	-1.7	0.5	1.7
3086DGDtlr_sub.csv	2:59	13:19	2.3	3.1	-1.0	-1.2	0.3	2.6
3088DGDtrl_sub.csv	3:08	13:28	0.2	2.5	-1.1	-0.7	0.4	2.1
3090DGDtlr_sub.csv	3:17	13:37	3.9	2.5	-0.9	-1.7	0.2	3.6
3092DGDtrl_sub.csv	3:30	13:50	1.8	2.4	-0.3	-0.3	0.2	3.5
3094DGDtlr_sub.csv	3:40	14:00	1.1	1.8	-1.0	-0.3	0.1	1.9
3096DGDtrl_sub.csv	3:49	14:09	0.1	1.4	-1.1	-0.2	0.5	1.6
3098DGDtlr_sub.csv	3:58	14:18	4.5	2.5	-0.8	-1.6	0.1	3.5
3100DGDtrl_sub.csv	4:09	14:29	-0.3	1.5	0.3	-0.8	0.7	2.4
3102DGDtlr_sub.csv	4:18	14:38	3.2	1.6	0.2	-1.5	0.1	3.1
3104DGDtrl_sub.csv	4:33	14:53	1.6	0.7	0.3	0.1	0.1	3.2
3106DGDtlr_sub.csv	4:45	15:05	3.3	1.8	1.0	-1.3	0.2	2.6
3108DGDtrl_sub.csv	4:59	15:19	-6.3	-4.4	4.5	-1.7	0.7	-3.9
3110DGDtlr_sub.csv	5:08	15:28	0.5	-3.2	4.4	-1.0	-0.1	-5.4
3112DGDtrl_sub.csv	5:17	15:37	-20.1	-9.6	5.8	-4.4	0.5	-25.4
3114DGDtlr_sub.csv	5:29	15:49	-24.1	-13.8	3.5	-7.7	-0.4	-41.9
3116DGDtrl_sub.csv	5:38	15:58	-40.4	-18.2	6.9	-3.8	1.2	-49.0
3118DGDtlr_sub.csv	5:56	16:16	-22.4	-12.2	3.8	-3.8	-0.1	-41.4
3120DGDtrl_sub.csv	6:05	16:25	-33.6	-20.4	7.7	-11.5	3.1	-47.3
3122DGDtlr_sub.csv	6:14	16:34	-20.0	-12.3	6.1	-4.0	0.4	-38.5
3124DGDtrl_sub.csv	6:28	16:48	-37.5	-25.5	6.7	-1.4	0.5	-50.9
3126DGDtlr_sub.csv	-6:18	17:01	-27.4	-21.0	5.1	-3.6	-0.2	-52.0
3128DGDtrl_sub.csv	-6:8	17:11	-43.4	-28.9	6.7	-1.7	0.7	-63.4
3132DGDtrl_sub.csv	-5:42	17:37	-42.2	-24.2	5.0	-5.8	0.2	-64.3
3134DGDtlr_sub.csv	-5:32	17:47	-33.2	-18.3	2.7	-2.7	-0.3	-54.2
3136DGDtrl_sub.csv	-5:22	17:57	-37.6	-17.1	4.4	-0.8	0.2	-47.3
3138DGDtlr_sub.csv	-5:11	18:08	-22.1	-9.8	3.7	-0.2	-0.1	-32.2
3140DGDtrl_sub.csv	-1:5	18:18	-22.5	-8.7	4.0	-0.6	-0.5	-28.6
3144DGDtlr_sub.csv	-4:44	18:35	-23.8	-6.7	3.1	-1.2	-1.6	-28.8
3146DGDtlr_sub.csv	-4:35	18:44	-20.3	-4.8	3.1	-1.3	-0.7	-24.1

Sediment concentration distribution over the cross section

Transect name	*Time [hh:mm MET]*	*Time after HW [hh:mm]*	*Average measured SS Concentration [mg/l]*	*Average measured incoming SS Concentration [mg/l]*	*Average measured outgoing SS Concentration [mg/l]*
3002DGDtlr_sub.csv	6:10	-4:9	71	83	47
3004DGDtrl_sub.csv	6:20	-3:71	97	119	55
3006DGDtlr_sub.csv	6:30	-3:49	97	115	61
3008DGDtrl_sub.csv	6:40	-3:39	89	101	64
3010DGDtlr_sub.csv	6:50	-3:29	79	85	64
3012DGDtrl_sub.csv	6:59	-3:20	66	70	56
3014DGDtlr_sub.csv	7:09	-3:10	60	63	52
3016DGDtrl_sub.csv	7:17	-2:3	64	68	54
3018DGDtlr_sub.csv	7:27	-2:52	77	86	59
3020DGDtrl_sub.csv	7:36	-2:43	84	95	63
3022DGDtlr_sub.csv	7:47	-2:32	92	102	75
3024DGDtrl_sub.csv	7:56	-2:23	100	107	86
3026DGDtlr_sub.csv	8:05	-2:14	92	95	87
3028DGDtrl_sub.csv	8:14	-2:5	81	81	80
3030DGDtlr_sub.csv	8:24	-1:55	68	68	69
3032DGDtrl_sub.csv	8:32	-1:47	62	61	65
3034DGDtlr_sub.csv	8:44	-1:35	54	51	60
3036DGDtrl_sub.csv	8:55	-1:24	52	48	64
3038DGDtlr_sub.csv	9:04	-1:15	56	52	64
3040DGDtrl_sub.csv	9:12	-1:7	52	52	51
3042DGDtlr_sub.csv	9:22	-0:57	52	57	44
3044DGDtrl_sub.csv	9:33	-0:46	54	69	38
3046DGDtlr_sub.csv	9:49	-0:30	53	81	38
3048DGDtrl_sub.csv	9:58	-0:21	51	78	38
3050DGDtlr_sub.csv	10:14	-0:05	51	77	38
3052DGDtrl_sub.csv	10:22	0:02	55	82	41
3054DGDtlr_sub.csv	10:32	0:12	49	72	38
3056DGDtrl_sub.csv	10:42	0:22	47	69	37
3058DGDtlr_sub.csv	10:52	0:32	50	74	39
3060DGDtrl_sub.csv	11:03	0:43	44	68	32
3062DGDtlr_sub.csv	11:13	0:53	37	56	27
3064DGDtrl_sub.csv	11:24	1:04	34	50	25
3066DGDtlr_sub.csv	11:34	1:14	30	44	22
3068DGDtrl_sub.csv	11:45	1:25	29	42	22
3070DGDtlr_sub.csv	11:55	1:35	33	47	26
3072DGDtrl_sub.csv	12:05	1:45	36	51	27
3074DGDtlr_sub.csv	12:18	1:58	34	48	26
3076DGDtrl_sub.csv	12:27	2:07	32	43	26
3078DGDtlr_sub.csv	12:36	2:16	30	42	24
3080DGDtrl_sub.csv	12:46	2:26	34	51	26
3082DGDtlr_sub.csv	12:58	2:38	34	52	26
3084DGDtrl_sub.csv	13:10	2:50	34	51	27

Transect name	*Time [hh:mm MET]*	*Time after HW [hh:mm]*	*Average measured SS Concentration [mg/l]*	*Average measured incoming SS Concentration [mg/l]*	*Average measured outgoing SS Concentration [mg/l]*
3086DGDtlr_sub.csv	13:19	2:59	34	52	26
3088DGDtrl_sub.csv	13:28	3:08	32	48	25
3090DGDtlr_sub.csv	13:37	3:17	29	44	23
3092DGDtrl_sub.csv	13:50	3:30	28	39	24
3094DGDtlr_sub.csv	14:00	3:40	26	38	20
3096DGDtrl_sub.csv	14:09	3:49	27	39	22
3098DGDtlr_sub.csv	14:18	3:58	30	45	25
3100DGDtrl_sub.csv	14:29	4:09	29	40	24
3102DGDtlr_sub.csv	14:38	4:18	26	36	22
3104DGDtrl_sub.csv	14:53	4:33	31	38	28
3106DGDtlr_sub.csv	15:05	4:45	40	53	33
3108DGDtrl_sub.csv	15:19	4:59	48	65	36
3110DGDtlr_sub.csv	15:28	5:08	50	72	36
3112DGDtrl_sub.csv	15:37	5:17	68	106	36
3114DGDtlr_sub.csv	15:49	5:29	93	158	40
3116DGDtrl_sub.csv	15:58	5:38	109	173	50
3118DGDtlr_sub.csv	16:16	5:56	105	157	56
3120DGDtrl_sub.csv	16:25	6:05	105	146	59
3122DGDtlr_sub.csv	16:34	6:14	88	119	51
3124DGDtrl_sub.csv	16:48	6:28	95	127	53
3126DGDtlr_sub.csv	17:01	-6:18	96	132	51
3128DGDtrl_sub.csv	17:11	-6:8	99	135	51
3132DGDtrl_sub.csv	17:37	-5:42	94	121	48
3134DGDtlr_sub.csv	17:47	-5:32	81	102	43
3136DGDtrl_sub.csv	17:57	-5:22	69	86	39
3138DGDtlr_sub.csv	18:08	-5:11	59	73	36
3140DGDtrl_sub.csv	18:18	-1:5	54	65	36
3144DGDtlr_sub.csv	18:35	-4:44	53	61	38
3146DGDtlr_sub.csv	18:44	-4:35	57	66	43
3002DGDtlr_sub.csv	6:10	-4:9	71	83	47
3004DGDtrl_sub.csv	6:20	-3:71	97	119	55
3006DGDtlr_sub.csv	6:30	-3:49	97	115	61
3008DGDtrl_sub.csv	6:40	-3:39	89	101	64
3010DGDtlr_sub.csv	6:50	-3:29	79	85	64
3012DGDtrl_sub.csv	6:59	-3:20	66	70	56
3014DGDtlr_sub.csv	7:09	-3:10	60	63	52
3016DGDtrl_sub.csv	7:17	-2:3	64	68	54
3018DGDtlr_sub.csv	7:27	-2:52	77	86	59
3020DGDtrl_sub.csv	7:36	-2:43	84	95	63
3022DGDtlr_sub.csv	7:47	-2:32	92	102	75
3024DGDtrl_sub.csv	7:56	-2:23	100	107	86
3026DGDtlr_sub.csv	8:05	-2:14	92	95	87
3028DGDtrl_sub.csv	8:14	-2:5	81	81	80
3030DGDtlr_sub.csv	8:24	-1:55	68	68	69

Transect name	*Time [hh:mm MET]*	*Time after HW [hh:mm]*	*Average measured SS Concentration [mg/l]*	*Average measured incoming SS Concentration [mg/l]*	*Average measured outgoing SS Concentration [mg/l]*
3032DGDtrl_sub.csv	8:32	-1:47	62	61	65
3034DGDtlr_sub.csv	8:44	-1:35	54	51	60
3036DGDtrl_sub.csv	8:55	-1:24	52	48	64
3038DGDtlr_sub.csv	9:04	-1:15	56	52	64
3040DGDtrl_sub.csv	9:12	-1:7	52	52	51

	Concentration [mg/l]								
	overall SSC			*incoming SSC*			*outgoing SSC*		
Tide	*min*	*average*	*max*	*min*	*average*	*max*	*min*	*average*	*max*
Flood	51	71	100	48	82	135	36	32	59
Eb	26	47	109	36	68	173	20	55	87

APPENDIX H.

TEMPORAL VARIATION OF TOTAL FLUX, TOTAL DISCHARGE AND SUSPENDED SEDIMENT CONCENTRATION

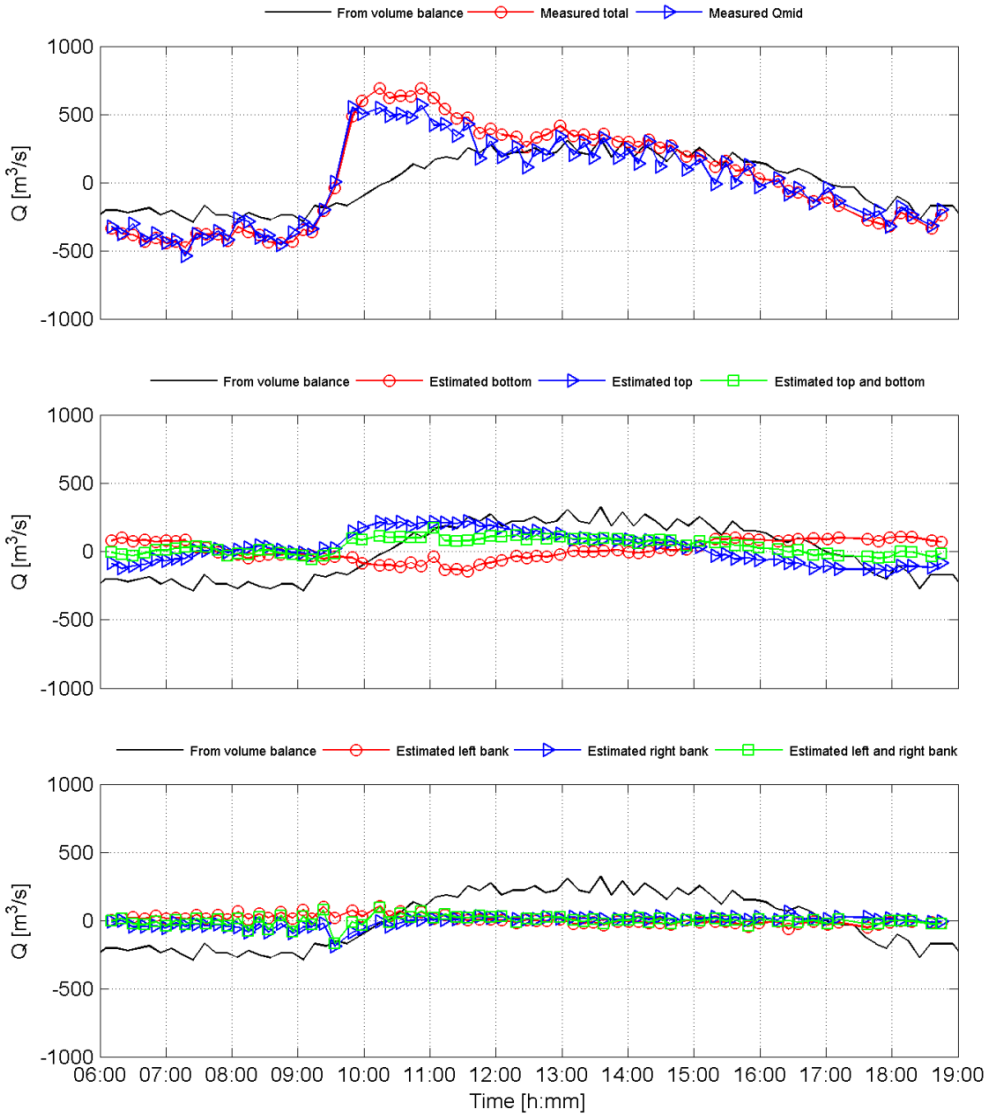
Total discharge through the measured cross section, positive is from dock to river

11283: Opvolging aanslibbing DGD

Equipment(s):
ADCP

Sourcefile(s):
3004DGDtrl_sub.csv
3146DGDtlr_sub.csv

Location:
Deurganckdok



Date :
06-Mar-2009

Data Processed by:
In association with :

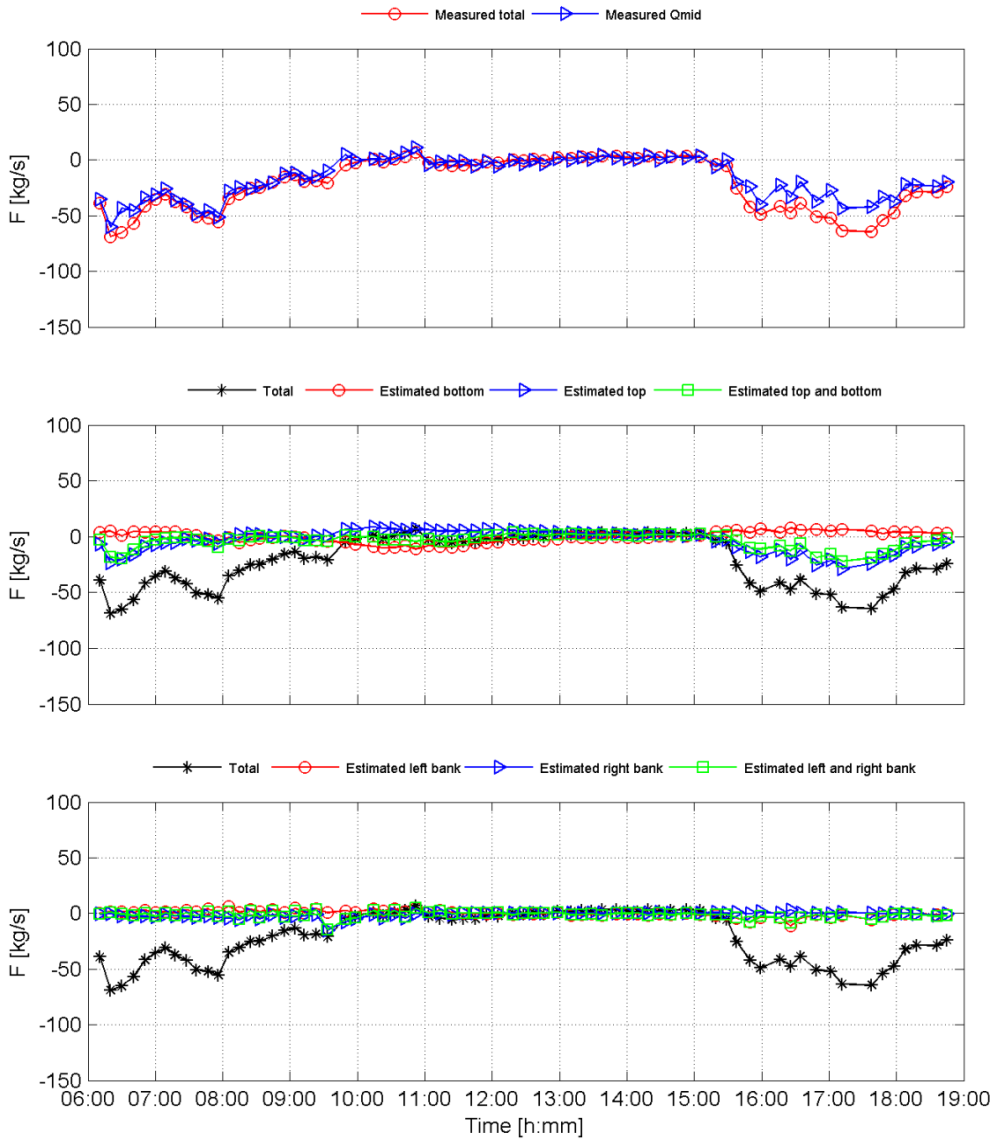
Total flux through the measured cross section, positive is from dock to river

11283: Opvolging aanslibbing DGD

Equipment(s):
ADCP

Sourcefile(s):
3004DGDtrl_sub.csv
3146DGDtlr_sub.csv

Location:
Deurganckdok



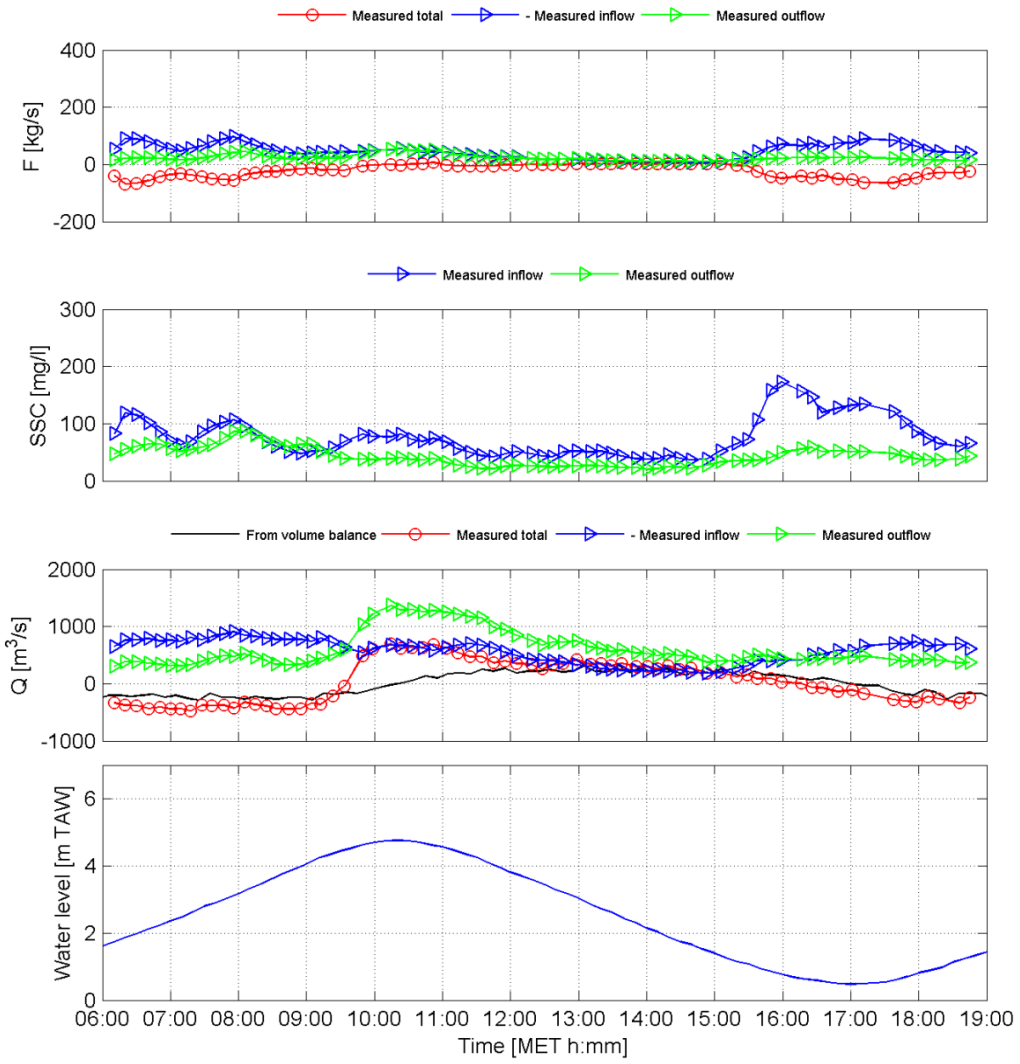
Date :
06-Mar-2009

Data Processed by:
In association with :

Suspended sediment concentration through the measured cross section

11283: Opvolging aanslibbing DGD

	Equipment(s): ADCP
Sourcefile(s): 3004DGDtrl_sub.csv 3146DGDtlr_sub.csv	Location: Deurganckdok



Date : 06-Mar-2009	Data Processed by: IMDC International Marine & Dredging Consultants In association with : WL | delft hydraulics

APPENDIX I.

OVERVIEW OF HCBS2 AND AANSLIBBING DEURGANCKDOK REPORTS

Report	Description of HCBS2
Ambient Conditions Lower Sea Scheldt	
5.3	Overview of ambient conditions in the river Scheldt – January-June 2006 (I/RA/11291/06.088/MSA)
5.4	Overview of ambient conditions in the river Scheldt – July-December 2006 (I/RA/11291/06.089/MSA)
5.5	Overview of ambient conditions in the river Scheldt : RCM-9 buoy 84 & 97 (1/1/2007 -31/3/2007) (I/RA/11291/06.090/MSA)
5.6	Analysis of ambient conditions during 2006 (I/RA/11291/06.091/MSA)
Calibration	
6.1	Winter Calibration (I/RA/11291/06.092/MSA)
6.2	Summer Calibration and Final Report (I/RA/11291/06.093/MSA)
Through tide Measurements Winter 2006	
7.1	21/3 Scheldewacht – Deurganckdok – Salinity Distribution (I/RA/11291/06.094/MSA)
7.2	22/3 Parel 2 – Deurganckdok (I/RA/11291/06.095/MSA)
7.3	22/3 Laure Marie – Liefkenshoek (I/RA/11291/06.096/MSA)
7.4	23/3 Parel 2 – Schelle (I/RA/11291/06.097/MSA)
7.5	23/3 Laure Marie – Deurganckdok (I/RA/11291/06.098/MSA)
7.6	23/3 Veremans Waarde (I/RA/11291/06.099/MSA)
HCBS Near bed continuous monitoring (Frames)	
8.1	Near bed continuous monitoring winter 2006 (I/RA/11291/06.100/MSA)
INSSEV	
9	Settling Velocity - INSSEV summer 2006 (I/RA/11291/06.102/MSA)
Cohesive Sediment	
10	Cohesive sediment properties summer 2006 (I/RA/11291/06.103/MSA)
Through tide Measurements Summer 2006	
11.1	Through Tide Measurement Sediview and Siltprofiler 27/9 Stream - Liefkenshoek (I/RA/11291/06.104/MSA)
11.2	Through Tide Measurement Sediview 27/9 Veremans - Raai K (I/RA/11291/06.105/MSA)
11.3	Through Tide Measurement Sediview and Siltprofiler 28/9 Stream - Raai K (I/RA/11291/06.106/MSA)
11.4	Through Tide Measurement Sediview 28/9 Veremans - Waarde(I/RA/11291/06.107/MSA)
11.5	Through Tide Measurements Sediview 28/9 Parel 2 - Schelle (I/RA/11291/06.108/MSA)
11.6	Through Tide measurement 26/9 Scheldewacht – Deurganckdok – Salinity Distribution (I/RA/11291/06.161/MSA)

Analysis	
12	Report concerning the presence of HCBS layers in the Scheldt river (I/RA/11291/06.109/MSA)

Report	**Description of Opvolging aanslibbing Deurganckdok between April 2006 till March 2007**
Sediment Balance: Bathymetry surveys, Density measurements, Maintenance and construction dredging activities	
1.1	Sediment Balance: Three monthly report 1/4/2006 – 30/06/2006 (I/RA/11283/06.113/MSA)
1.2	Sediment Balance: Three monthly report 1/7/2006 – 30/09/2006 (I/RA/11283/06.114/MSA)
1.3	Sediment Balance: Three monthly report 1/10/2006 – 31/12/2006 (I/RA/11283/06.115/MSA)
1.4	Sediment Balance: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.116/MSA)
1.5	Annual Sediment Balance (I/RA/11283/06.117/MSA)
1.6	Sediment balance Bathymetry: 2005 – 3/2006 (I/RA/11283/06.118/MSA)
Factors contributing to salt and sediment distribution in Deurganckdok: Salt-Silt (OBS3A) & Frame measurements, Through tide measurements (SiltProfiling & ADCP)	
2.1	Through tide measurement Siltprofiler 21/03/2006 Laure Marie (I/RA/11283/06.087/WGO)
2.2	Through tide measurement Siltprofiler 26/09/2006 Stream (I/RA/11283/06.068/MSA)
2.3	Through tide measurement Sediview spring tide 22/03/2006 Veremans (I/RA/11283/06.110/BDC)
2.4	Through tide measurement Sediview spring tide 27/09/2006 Parel 2 (I/RA/11283/06.119/MSA)
2.5	Through tide measurement Sediview average tide 24/10/2007 Parel 2 (I/RA/11283/06.120/MSA)
2.6	Salt-Silt distribution & Frame Measurements Deurganckdok 13/3/2006 – 31/05/2006 (I/RA/11283/06.121/MSA)
2.7	Salt-Silt distribution & Frame Measurements Deurganckdok 15/07/2006 – 31/10/2006 (I/RA/11283/06.122/MSA)
2.8	Salt-Silt distribution & Frame Measurements Deurganckdok 12/02/2007 – 18/04/2007 (I/RA/11283/06.123/MSA)
2.9	Calibration stationary equipment autumn (I/RA/11283/07.095/MSA)

Report	Description of Opvolging aanslibbing Deurganckdok between April 2006 till March 2007
Boundary Conditions: Upriver Discharge, Salt concentration Scheldt, Bathymetric evolution in access channels, dredging activities in Lower Sea Scheldt and access channels	
3.1	Boundary conditions: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.127/MSA) including HCBS 2 report 5.5
~~3.2~~	~~Boundary condtions: Annual report (I/RA/11283/06.128/MSA)~~[1]
Analysis	
4.1	Analysis of Siltation Processes and Factors 4/'06 – 3/'07 (I/RA/11283/06.129/MSA)

Report	Description of Opvolging aanslibbing Deurganckdok between April 2007 till March 2008
Sediment Balance: Bathymetry surveys, Density measurements, Maintenance and construction dredging activities	
1.10	Sediment Balance: Three monthly report 1/4/2007 - 30/06/2007 (I/RA/11283/07.081/MSA)
1.11	Sediment Balance: Three monthly report 1/7/2007 – 30/09/2007 (I/RA/11283/07.082/MSA)
1.12	Sediment Balance: Three monthly report 1/10/2007 – 31/12/2007 (I/RA/11283/07.083/MSA)
1.13	Sediment Balance: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/07.084/MSA)
1.14	Annual Sediment Balance (I/RA/11283/07.085/MSA)
Factors contributing to salt and sediment distribution in Deurganckdok: Salt-Silt (OBS3A) & Frame measurements, Through tide measurements (SiltProfiling & ADCP) & Calibrations	
2.09	Calibration stationary equipment autumn (I/RA/11283/07.095/MSA)
2.10	Through tide measurement Siltprofiler 23 October 2007 (I/RA/11283/07.086/MSA)
2.11	Through tide measurement Salinity Profiling winter (I/RA/11283/07.087/MSA)
2.12	Through tide measurement Sediview winter 11 March 2008 Transect I (I/RA/11283/07.088/MSA)
2.13	Through tide measurement Sediview winter 11 March 2008 Transect K (I/RA/11283/07.089/MSA)
2.14	Through tide measurement Sediview winter 11 March 2008 Transect DGD (I/RA/11283/07.090/MSA)
2.15	Through tide measurement Siltprofiler 12 March 2008 (I/RA/11283/07.091/MSA)
2.16	Salt-Silt distribution Deurganckdok summer (21/6/2007 – 30/07/2007) (I/RA/11283/07.092/MSA)
2.17	Salt-Silt distribution & Frame Measurements Deurganckdok autumn (17/09/2007 - 10/12/2007) (I/RA/11283/07.093/MSA)
2.18	Salt-Silt distribution & Frame Measurements Deurganckdok winter (18/02/2008 - 31/3/2008) (I/RA/11283/07.094/MSA)

[1] considered in report 5.6 'Analysis of ambient conditions during 2006' (I/RA/11291/06.091/MSA) in the framework of the study 'Extension of the study about density currents in the Beneden Zeeschelde'

Report	Description of Opvolging aanslibbing Deurganckdok between April 2007 till March 2008
2.19	Calibration stationary & mobile equipment winter (I/RA/11283/07.096/MSA)
Boundary Conditions: Upriver Discharge, Salt concentration Scheldt, Bathymetric evolution in access channels, dredging activities in Lower Sea Scheldt and access channels	
3.10	Boundary conditions: Three monthly report 1/4/2007 – 30/06/2007 (I/RA/11283/07.097/MSA)
3.11	Boundary conditions: Three monthly report 1/7/2007 – 30/09/2007 (I/RA/11283/07.098/MSA)
3.12	Boundary conditions: Three monthly report 1/10/2007 – 31/12/2007 (I/RA/11283/07.099/MSA)
3.13	Boundary conditions: Three monthly report 1/1/2008 – 31/03/2008 (I/RA/11283/07.100/MSA)
3.14	Boundary conditions: Annual report (I/RA/11283/07.101/MSA)
Analysis	
4.10	Analysis of Siltation Processes and Factors 4/'07 – 3/'08 (I/RA/11283/07.102/MSA)